DOCUMENT RESUME

ED 300 592 CE 051 223

TITLE	Utilizing Modern Technology in Adult and Continuing Education Programs.
INSTITUTION	New York State Education Dept., Albany. Bureau of Curriculum Development.; New York State Education Dept., Albany. Div. of Adult and Continuing Education Programs.
REPORT NO	CAD-88-663
PUB DATE	88
NOTE	48p.; For the guide to which this is a supplement, see ED 232 019.
AVAILABLE FROM	George T. Tregaskis, Room 314 EB, New York State Education Department, Albany, NY 12234.
PUB TYPE	Guides - Classroom Use - Guides (For Teachers) (052)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	*Adult Education; Adult Programs; *Computer Assisted Instruction; Computer Managed Instruction; Continuing Education; *Educational Television; *Management Information Systems; *Staff Development; *Videotape Recordings

ABSTRACT

This publication, designed as a supplement to the manual entitled "Managing Programs for Adults" (1983), provides guidelines for establishing or expanding the use of video and computers by administration and staff of adult education programs. The first section presents the use of video technology for program promotion, instruction, and staff development and training. Types of promotional programs and services, a listing of promotional resources, and production of promotional videotapes are discussed. Video use in adult education classrooms and as a means to teach otherwise difficult-to-reach populations is described. This includes ways to use video, its advantages and limitations, materials needed to use video, and cost and sources of videotapes. In addition to practical considerations in buying video equipment and means of ensuring its use, advantages and ways of using video for staff development and training are discussed. The second section addresses instructional and managerial applications of computers to adult and continuing education. Examples drawn from both funded and fee-supported programs provide models of applications. Positive aspects and future potentials for the computer as a management tool are described and the pros and cons of software are explored, along with the alternatives to commercially produced software. An annotated list of supplementary software programs and a directory of vendors and references conclude this section. (YLB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED300592

CE

UTILIZING MODERN TECHNOLOGY IN ADULT AND CONTINUING EDUCATION PROGRAMS

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

VIDEOS ■
COMPUTERS ■

IPCOS/HB

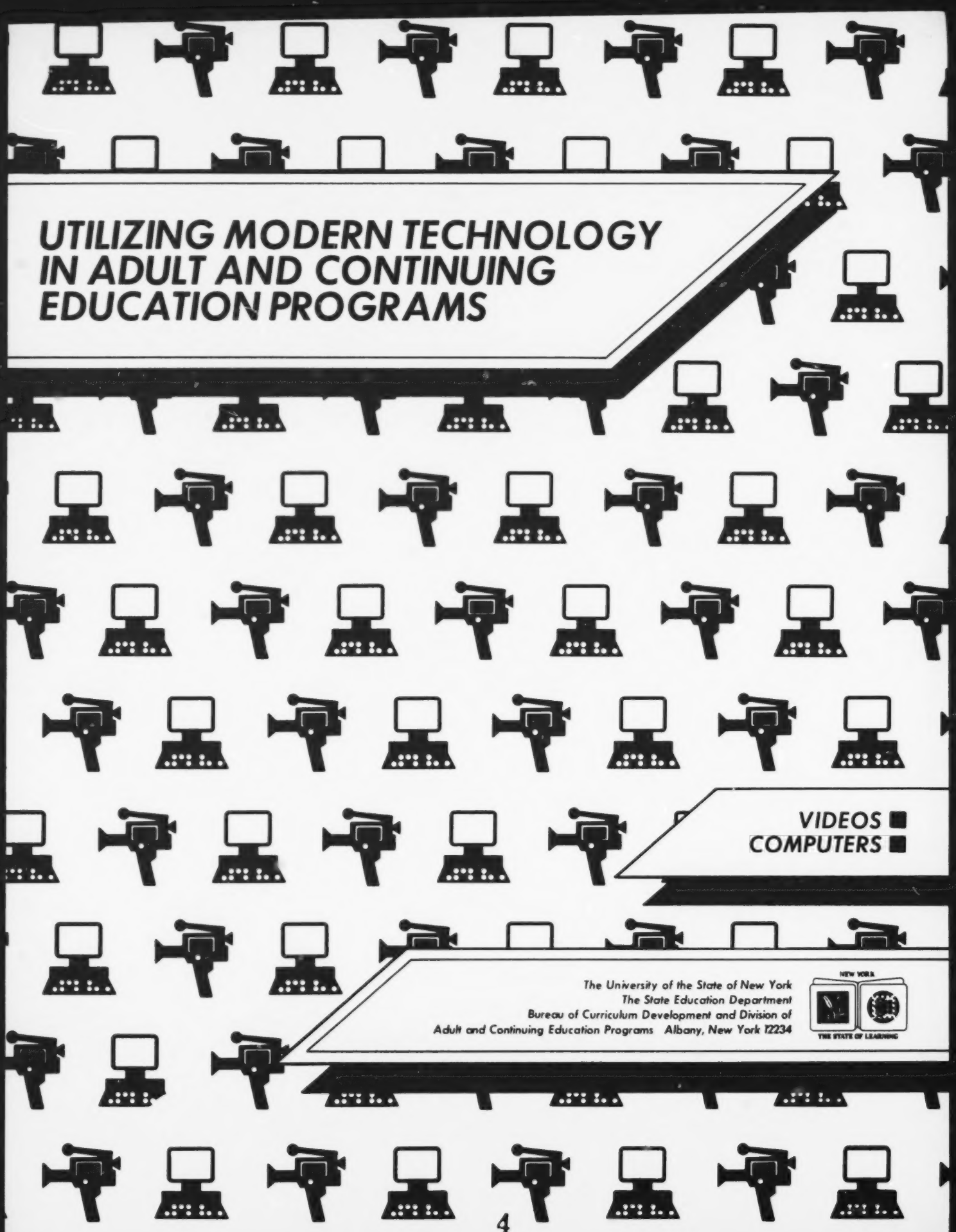
TO: Directors of Adult and Community Education Programs

FROM: Edward T. Lalor, Director, Division for Program Development
Garrett Murphy, Director, Division of Adult and Continuing Education Programs

The publication, *Utilizing Modern Technology in Adult and Continuing Education Programs* provides guidelines for establishing or expanding the use of video and computers by administration and staff. It is intended to serve as a supplement to *Managing Programs for Adults.*

Additional copies may be obtained by writing George K. Tregaskis, Room 314 EB, New York State Education Department, Albany, New York 12234.

As is the policy of the State Education Department, this guide will be reviewed periodically. Your comments are welcomed and should be forwarded through your Regional Supervisor.



UTILIZING MODERN TECHNOLOGY IN ADULT AND CONTINUING EDUCATION PROGRAMS

VIDEOS ■
COMPUTERS ■

The University of the State of New York
The State Education Department
Bureau of Curriculum Development and Division of
Adult and Continuing Education Programs Albany, New York 12234

THE UNIVERSITY OF THE STATE OF NEW YORK

Regents of The University

Martin C. Barell, Chancellor, B.A., I.A., LL.B.	Muttontown
R. Carlos Carballada, Vice Chancellor, B.S.	Rochester
Willard A. Genrich, LL.B.	Buffalo
Emlyn I. Griffith, A.B., J.D.	Rome
Jorge L. Batista, B.A., J.D.	Bronx
Laura Bradley Chodos, B.A., M.A.	Vischer Ferry
Louise P. Matteoni, B.A., M.A., Ph.D.	Bayside
J. Edward Meyer, B.A., LL.B.	Chappaqua
Floyd S. Linton, A.B., M.A., M.P.A.	Miller Place
Mimi Levin Lieber, B.A., M.A.	Manhattan
Shirley C. Brown, B.A., M.A., Ph.D.	Albany
Norma Gluck, B.A., M.S.W.	Manhattan
James W. McCabe, Sr., A.B., M.A.	Johnson City
Adelaide L. Sanford, B.A., M.A., P.D.	Hollis
Walter Cooper, B.A., Ph.D.	Rochester
Gerald J. Lustig, B.A., M.D.	Staten Island

President of The University and Commissioner of Education
Thomas Sobol

Executive Deputy Commissioner of Education
Robert J. Maurer

Deputy Commissioner for Elementary, Secondary and Continuing Education
Gerald L. Freeborne

Assistant Commissioner for ESC Education Planning and Support Services
John J. Murphy

Director, Division for Program Development
Edward T. Lalor

Chief, Bureau of Curriculum Development

Assistant Commissioner for Occupational and Continuing Education
James A. Kadamus

Director, Division of Adult and Continuing Education Programs
Garrett Murphy

Chief, Bureau of Adult and Continuing Education Program Development
Russell Kratz

The State Education Department does not discriminate on the basis of age, color, religion, creed, disability, marital status,. veteran status, national origin, race, or sex in the educational programs and activities which it operates. Inquiries concerning this policy of equal opportunity and affirmative action should be referred to the Department's Affirmative Action Officer, Education Building, Albany, NY 12234. Phone (518) 474-1265.

FOREWORD

The Division of Adult and Continuing Education Programs has a responsibility for updating and keeping pace with state-of-the-art services for out-of-school youth and adults in New York State. An example of this obligation is evidenced in the State's commitment to advise and assist adult educators in the advances of modern technology.

The purpose of this publication is to increase awareness of the uses of television and computers in adult education programs and to encourage their utilization. *Utilizing Modern Technology in Adult and Continuing Education Programs* provides background information as well as guidelines for supplementing existing programs or developing new components within adult education.

It is assumed that many adult education programs currently employ these aspects of modern technology; however, this publication may suggest refinements of current applications and will certainly provide basic guidelines for those programs which are in the process of planning for the use of modern technology.

The first section of this publication presents the use of video technology for program promotion, instruction, and staff development and training. Types of promotional programs and services, a listing of promotional resources, and how to produce promotional videotapes are discussed. Video use in adult education classrooms and as a means to teach otherwise difficult-to-reach populations is described, including ways to use video, its advantages and limitations, materials needed to use video, and cost and sources of instructional videotapes. In addition to practical considerations in buying video equipment and means of ensuring its use, advantages and ways of using video for staff development and training are also discussed.

The second section of this publication addresses instructional and managerial applications of computers to adult and continuing education. Examples drawn from both funded and fee-supported programs provide models of applications. Positive aspects and future potentials for the computer as a management tool are described and the pros and cons of software are explored, along with the alternatives to commercially-produced ware. Supplementary software programs and a directory of vendors and references conclude this section.

For further information on utilizing video or computers in adult education programs contact the Bureau of Adult and Continuing Education Program Development, (518) 474-8700, or the Community and Continuing Education Information Service (CCEIS) at (518) 474-3639.

The section on the use of video technology was written by Deborah Clark, Albany Educational Television, Albany City Schools. Mary Kinnaird, Berne-Knox-Westerlo Schools Central School District wrote the section on computers. The following individuals made valuable contributions to the development of the publication:

Frank Andriano, D-Vise Inc.
Alan Anderson, Freeport Union Free School
Elizabeth Buckley, Great Neck Union Free School
Ilene Clinton, Rensselaer-Columbia-Greene BOCES
Cynthia Crosby, Syracuse City Schools
Morton Horowitz, Oceanside Union Free School
Rose Marie Lamorella, Albany City Schools
Lynn Lamey, Broome-Tioga BOCES
Rita Lavay, New York State Education Department
Leslee Oppenheim, City University of New York
Ronald Pryor, Guilderland Central School
Glen Schechtman, New York State Education Department
Gretchen Starks, Community College of the Finger Lakes
John Tracy, Albany City Schools
Zita Radko, Yonkers City Schools

The entire publication was reviewed by Lillian R. McMillen, recently retired, Instructional Specialist, Niagara Falls Adult Education Programs. Dorothy Houde, Albany City Schools edited and prepared original drafts of the manuscript for publication. George K. Tregaskis, Associate, Division for Program Development directed the project.

CONTENTS

Foreword iii

Video Technology 1
- The Promotion of Programs and Services 1
- Instruction 6
- Staff Development and Training 17
- Purchasing Equipment 19

Computer Technology 25
- Instructional Applications of Computers 25
- Management Applications of Computers 33

Appendix 37
- Resources of Adult Education Software Programs 37
- Titles of Useful Adult Educational Microcomputer Software Programs 38
- Software Company/Vendor Addresses 40
- References 42

VIDEO TECHNOLOGY

Video technology, and its related delivery systems, broadcast and cable television, are valuable tools for meeting the specific needs of adult education programs. Video can be utilized in all types of adult education programs to:

- Promote programs and the services they offer.
- Provide, supplement, and enhance instruction.
- Train and develop staff.

The increasing growth of video for home use and consequently, the demystification of the medium, coupled with less expensive equipment costs, make the use of video in adult education programs not only feasible but attractive for several reasons. A few of the most common are:

- To save time and money.
- To present a standardized message.
- To expand services.
- To supplement curriculum.
- To offer an alternative learning style.
- To provide an alternative instructional delivery system.
- To create possibilities when other methods are inadequate or infeasible.

THE PROMOTION OF PROGRAMS AND SERVICES

Video and television can be used very advantageously for promoting adult education programs and the services they offer. Both are excellent ways to reach targeted audiences, since over 95% of all homes have at least one television, and the average American spends seven hours per day viewing television. One adult education program which has used both television and print during the past ten years to advertise its services has found that its televised efforts were more successful, and received a better response.

Television is a particularly effective medium for reaching nonreaders, since they are more apt to get their information from television or radio than from print. On television, the information is conveyed by visuals and voice, so viewers don't need to read to be able to understand the message. The ability of television to convey emotion as well as content makes it a more persuasive medium than print, especially for the purpose of appealing to adults who may be hesitant or apprehensive about returning to school.

Television can also be a less expensive promotional medium than print - if free resources are utilized.

TYPES OF PROMOTIONAL EFFORTS

Video and television can be used for both public and in-house promotional efforts. They can be used to recruit students and staff, to raise the awareness of the general public, and to educate elected officials about the problems of adult illiteracy and the services adult education programs provide to the community.

Public Promotional Efforts Include:

- Videotaped public service announcements (PSA's) delivered via cable or broadcast television.
- Full-length public service television programs.
- Television talk shows.
- Televised "bulletin boards," consisting of electronic print messages.
- Feature news stories (particularly ones with human interest angles or ones which tie in with a national campaign).
- Media events (inviting the media to a special event, e.g., awards ceremony or open house).
- Video "loops" displayed at shopping centers, educational fairs, and other heavily trafficked public places.
- Promotional videotapes of a program's services to show to community groups, school administrators, and possible sources of funding.

In-house Promotional Efforts Include:

- A video directory of various programs and services offered, shown to prospective students. A directory could

be put on a video loop and shown continuously in a reception area in the center.

- A videotaped orientation to the agency's programs, facilities, and procedures to be shown to new students.

INEXPENSIVE PROMOTIONAL RESOURCES

An adult education provider does not necessarily need to own or buy equipment in order to take advantage of the many ways in which video and television can promote programs or reach targeted populations. The following are inexpensive potential promotional resources available in many localities; many are free.

Albany Educational Television (AET)

AET is funded by the New York State Education Department as a Statewide 310 Project to provide video-related services to all of New York State's adult basic education (ABE)-funded programs.

Two of the services AET provides can be used for promotional purposes:

- PUBLIC SERVICE ANNOUNCEMENTS

  AET has produced three videotaped PSA's promoting literacy and targeted to undereducated adults. They are available through AET's Videotape Catalog. They may be customized with an agency's telephone number and address on a tag at the end of each. Adult education programs can show them on local cable systems or commercial television stations to promote their services.

- EDUCATIONAL AND INSTRUCTIONAL VIDEOTAPES

  AET has produced numerous educational and instructional videotapes, which can also be ordered through AET's Videotape Catalog and which are available for cablecasting. Cablecasting these reading, math, and life skills tapes with a tag at the end reading, "for further information," and listing a program's address and telephone number is an excellent way to draw new students to a program. AET's production facilities are described on p. 00.

Finger Lakes Staff-Development Project

A consortium of adult educators from the Finger Lakes area has produced a videotape entitled "You're In Good Company," which can be used as an orientation for new or prospective students and teachers entering adult education, and with community groups to generate awareness.

Local Cable Television Systems

Many cable television systems have franchise agreements with the municipalities they serve which specify that certain services be made available to community organizations. Most are free and can include access channels, production facilities for public use, and even training on the use of equipment. Services vary from system to system and from community to community, so the cable company should be contacted to find out what is available in a particular locality.

The following is a representative list of services which may be available.

- ACCESS CHANNELS

  These are channels set aside for public, governmental, and/or educational use. Specific types of access channels include:

  —Public Access: Channels on which any community group can have videotape programs cablecast, usually in either 3/4" or VHS formats. These channels are either administered by the cable company or a community organization, such as a public library.

  —Educational Access: Channels designed specifically for educational use. They are usually administered by a local educational institution, such as a university or public school system.

  —Lease Access: Channels on which groups or individuals can buy time for a nominal fee.

All of these types of access channels offer the adult education provider with possible promotional delivery systems for reaching undereducated adults with messages about services available to them.

- LOCAL ORIGINATION PROGRAMMING

  "L.O." programming is usually produced by cable companies as a community service or for their own promotional efforts. The cable company may work in cooperation with community organizations to create programs to meet public needs. It is an excellent way for adult educators to produce a weekly series addressing educational concerns. The program format could be interview, news style, or call-in talk show.

- PUBLIC SERVICE ANNOUNCEMENTS

Some cable systems have commercial insertion operations by which local commercials are inserted on satellite services, such as MTV, ESPN, CNN, etc. Some will include the insertion of PSA's at no charge, even during "prime time" if they have unsold advertising time available.

- COMMUNITY BULLETIN BOARDS

Most cable systems devote one channel to community announcements, which are cablecast in the form of electronic print. These listings are ideal for an open house, advertising registration, specific courses, services, and for recruiting students and staff. The exposure is excellent, since many of these "bulletin boards" are recycled continuously twenty-four hours a day. They have proven to get better results than more traditional media.

To be most effective, messages should be brief, approximately eight lines or less, and written in a poster format (what, where, when, and a telephone number for further information). Most companies require two weeks advance notice; local companies should be contacted for specifics.

- VIDEO EQUIPMENT/FACILITIES

Some cable companies have video equipment and/or production facilities available for public use. Some loan equipment; others require that their own staff operate it. If available, the use of such equipment and facilities would enable an adult education provider to produce its own PSA's or promotional programs for cablecasting.

- EQUIPMENT TRAINING WORKSHOPS

Cable companies who do have equipment for public use may offer, or even require, training in how to use their equipment before it can be borrowed. A nominal fee may be charged for such workshops.

These workshops provide a cost-effective way of introducing the staff to video production before investing thousands of dollars in production equipment. They also provide exposure to the types of equipment needed for production, and limited exposure to specific models and manufacturers.

Commercial Television Stations

Local network affiliates and independent broadcast stations are not as accessible as cable television, but they offer several services which can be valuable for promotional efforts.

- PUBLIC SERVICE ANNOUNCEMENTS

Stations will air pre-produced, videotaped 10-, 20-, or 30-second PSA's for free, provided the tapes are of good technical quality and in a 3/4" or larger format.

PSA's are generally broadcast during non-prime time, and sometimes during the news. There is no choice of hours.

An alternative for programs with no access to video production is to write copy and provide stations with 35mm color slide(s). The station will edit the two together to create a PSA. Some stations will also use an organization's logo or slide to create station "I.D.'s" (graphics that identify which station the viewer is watching).

Both the video and slide PSA's should include a telephone number shown on the screen for at least five seconds, which a viewer can call to get further information.

- PUBLIC SERVICE PROGRAMS

Commercial television stations devote part of their programming to the production of local public service programs. Similar to radio talk shows, many of these programs cover a different topic each week, so producers are always looking for new subject matter. This type of programming is an excellent vehicle for adult educators to present their program's services to the public.

The person to be contacted for details about both PSA's and public service programs is the public service director of the local station. Tapes and slides should never be sent to a station without first finding out specifics (acceptable formats and lengths, lead time, etc.) and without a written introduction or at least a phone call.

- NEWS COVERAGE

If contacted, the news departments of local commercial

stations will often cover an adult education program as a feature on the noon or evening news, especially if there is a "story" with a human-interest angle, e.g., a unique or "first of its kind" program, a student who's succeeded against all odds, or a teacher who has won an award.

News departments will also cover events, such as press conferences or open houses, especially if they are personally invited or if the event ties in with a national theme week, such as National Adult Education Week.

Adult education programs should cultivate relationships with reporters from all local stations. It is helpful to follow up press releases with a call to the news assignment editor, the person who determines what news is featured and what is not. A feature story gives prime time exposure and is equivalent to thousands of dollars in advertising.

PRODUCING PROMOTIONAL VIDEOTAPES

Considerations

If an adult education program decides to produce a promotional videotape, several things should be considered.

- WHAT IS ITS PURPOSE?

  To provide a general public awareness of services offered? To recruit students? To gain community support? Other?

- WHAT IS ITS PROPOSED USE?

  Broadcast? In-house use only? Use by community groups? Multi-use?

  If a videotape is to be broadcast on a commercial television station, its technical quality must be far better than if it is to be used for in-house purposes only. The technical quality is not the same as aesthetic or production quality. Only the most obvious technical problems are detected by the naked eye. In order to find out if a videotape meets the stringent technical standards required for broadcasting, the quality of the video signal must be verified by using equipment which can test and measure it. All broadcast stations have the equipment to analyze the technical quality of a videotape; often they will require that a technical analysis be done before accepting the tape for broadcasting.

- WHO IS THE INTENDED AUDIENCE?

  The message or content of the videotape will vary according to the intended audience. For example, the content of a PSA promoting evening continuing education courses would be quite different from a PSA recruiting women for a program specifically geared to the displaced homemaker. In many promotional campaigns, there are several audiences. In that case, a primary intended audience should be identified, and the videotape should be designed with that audience in mind. When a videotape is produced with too many audiences in mind, its message, and therefore its persuasive power, is diluted. Another option is to produce several versions of the same PSA, each with a slightly different slant for each different audience.

- IS VIDEO THE BEST PROMOTIONAL MEDIUM FOR THE PURPOSE?

  As a promotional tool, video has many advantages. It may not, however, be the best medium to use in every case. The advantages of video must be weighed against the cost of production. In some situations, radio, print, or some other medium may be the better choice.

- HOW COST-EFFECTIVE WILL IT BE?

  Initially, videotape production is very expensive and time-consuming; however, it can be quite cost-effective in the long run. To help make videotape production cost-effective, the message should be generic enough so the tape can be used again and again. The more a videotape is used, the more cost-effective it becomes.

  One way to make a tape generic is not to date it. Tag any information that is likely to become dated or to be changed, such as telephone numbers and dates, at the end of the PSA or program, using visuals only, so the information can be changed easily in the future. It is quite simple to insert new visual material, but very often impossible to insert spoken material without re-editing the whole videotape. Even if the new words take up the same amount of spoken space, it is very difficult to match a person's voice when it is taped at two different times.

Production Styles

There are several different production styles or formats which can be used to produce a promotional videotape. The choice of format can alter the cost of

production significantly. However, the least expensive format may not produce the most effective message. Therefore, when choosing a style, both cost and intended outcome should be considered. Possible production styles include the following:

- VOICE-OVER NARRATION WITH CORRESPONDING VISUALS

  This is the most inexpensive format and one of the easiest to produce. Because the narrator is not seen on-camera, a professional or experienced actor is not necessary. Someone with an expressive speaking voice and good inflection can read the narration.

- TALKING HEAD

  A narrator, versed on a subject, is shown on-camera talking directly to the viewer. This format is generally tightly scripted; therefore, it requires experienced or professional talent, who can memorize the script or read from cue cards, yet appear natural. The advantage of this format is that a lot of information can be imparted to the viewer in a short period of time. The drawback of this type is that it may not be as emotionally appealing as "real people" (not actors) talking extemporaneously about their beliefs or feelings. At its best, the talking head format can be dynamic and slick; at its worst, it can be dry and boring. Much of its success is dependent on the scripting and delivery. It is often used in conjunction with other formats, such as voice-over narration accompanied by illustrative visuals.

- TESTIMONIALS

  "Real people" (as opposed to actors) give their thoughts or opinions on a topic or share their experiences with the viewer. Testimonials can be one of the most powerful of all formats because viewers can relate to real-life experiences. It is an especially good format for reaching adults who are afraid or embarrassed to return to school. They will relate better to people like themselves who have had similar problems than they will to authority figures. The best responses occur when people are allowed to talk freely and are not prompted. This format requires considerable editing to capture a few "gems." At least twice as many people as needed should be interviewed in order to have enough good responses from which to choose.

- DRAMATIZATION

  Real-life situations are re-created on-camera, using actors. Dramatization can be very effective if done well with professional or experienced actors and if the script is well written. However, it can look amateurish if not done well. This format is the most difficult and expensive to produce. It takes time and professional talent to write and execute realistic dialogue.

- COMEDY

  Comedy is best left to the professionals. It can easily look amateurish and even trite.

- DOCUMENTARY

  Events and situations can be videotaped as they actually happen to create a record of what occurred or to show what something is like. The documentary format would be a good choice for an orientation or full-length program.

- MIXED FORMAT

  Many promotional videotapes are a combination of two or more styles, such as a talking head which cuts to testimonials, or a voice-over which is inter-cut documentary style with the actual audio of the footage.

Equipment and Facilities Needed

To produce a public service announcement for broadcast, access to good quality videotape recording and editing equipment is needed. The recording format should be 3/4" or larger. The camera used should preferably be a three-tube camera. All scenes shot should have adequate lighting. The tape should be edited onto a 3/4" or larger format tape, and the video footage should be time-base corrected as it is edited.

To produce a promotional tape for in-house use only, a one-tube camera and a 1/2" tape format will suffice as long as sufficient light is used to get a clean and crisp picture. Regardless of how a videotape product will be utilized, the edited "master" tape should never be used; it should be kept in a controlled environment for the purpose of making good copies. Therefore, the tapes actually put into use will be copies of the edited master. Each time a videotape is either edited or copied, the video and audio signals are electronically transferred to another tape, resulting in another "generation." Each subsequent generation loses picture quality.

Generally speaking, the larger tape formats produce better quality video (an exception is the new high-

speed small formats, such as Betacam), so to ensure good quality copies, it is best to use the larger formats (3/4" or larger) whenever possible. Similarly, when making copies, better quality copies are made from masters which are equivalent or larger sized tape formats than from masters which are smaller than the copies.

Options and Costs

There are several options for obtaining the equipment and facilities needed for producing a promotional videotape - all varying in cost.

The least expensive option is to use exisiting equipment which is owned by the adult education program or which is accessible through a school district, BOCES, or university media center. Some of these media centers have fairly sophisticated equipment and production facilities. The disadvantage is that equipment owned by educational institutions may not always be well maintained, and therefore, may not be able to produce a product which meets broadcast standards.

Another potential source of free equipment and production facilities in some localities is the cable television system, which may provide equipment and facilities for public use.

The most expensive option is to buy the time and services of a professional video facility, either a private production house or a commercial television station. Although a more expensive option, technical quality is almost always assured at a facility which makes its profit from selling its services.

Often an educational facility will have recording equipment but not editing equipment. In this case, a third option would be to supplement existing equipment with professional services.

Because the services of a professional facility can be quite expensive, any preliminary work which can be done on existing equipment should be done ahead of time. For example, even without editing equipment, footage can be logged, notes can be taken, and editing decisions can be made before the actual editing begins. Pre-planning will also make the editing session go much quicker, and therefore, save money.

One source for buying partial or full television production services is Albany Educational Television. AET may be sub-contracted for a particular service, such as editing, or contracted for a complete video production from scripting through dissemination of the completed tape.

Services which may be contracted from AET are scriptwriting, producing, directing, studio and on-location videotaping (3/4" format), 3/4" editing, tape duplication in three formats (3/4", VHS, and BETA I), electronic graphic design, still photography, and acting. Specific information about AET's services and a rate card may be obtained by writing to Albany Educational Television, 27 Western Ave., Albany, New York 12203 or by calling (518) 465-4741.

INSTRUCTION

USE IN THE ADULT EDUCATION CLASSROOM

An Overview

Video has many instructional uses in the adult education classroom. Like a book, video should be thought of as just another means for teaching the curriculum. As video offers teachers another instructional tool, it offers students an alternative learning style. Different people have different cognitive styles, or ways they learn best. Video may be a more effective way of learning for some students than books or a traditional classroom setting. Video also has the potential for assisting in classroom management where instruction is most likely to be individualized and where "open enrollment" allows students to enter the program at any time.

Videotapes can be used instructionally to:

- Stimulate students for further learning or for class discussion.
- Introduce a concept.
- Teach a specific skill or concept.
- Review or summarize what has already been taught.
- Teach behavioral or life skills and portray role models.
- Teach cross disciplines simultaneously with a multilevel class.
- Provide more flexible classroom management for individualized instruction.

Videotape formats in existence today are very easy to use. Unlike the older open reel formats, the 3/4", VHS, and Beta cassette formats do not have to be threaded, making them easy for both teachers and students to use and less susceptible to damage by the operator.

To show a videotape, a teacher only needs a videotape player compatible with the type of tape being used and a television receiver or monitor. With a large television set, tapes can be shown to the entire class. With earphones and a television arranged in a corner of the classroom, individual students can watch a tape without disturbing the rest of the class. By adding a multiple earphone jack and additional headsets, small groups of six to eight students can watch a tape without disturbing the rest of the class.

Although video adds another way of learning to the classroom and is both easy to use and flexible, it does have its limitations; principally, there is a lack of human interaction. Unless interactive television is being used, the student is unable to ask the teacher on the screen a question; thus, there is no immediate feedback. Video, therefore, should not be used to replace the teacher entirely. Another disadvantage is that students may view tapes as entertainment rather than a medium for learning.

To maximize the effectiveness of video as an instructional tool and minimize its limitations, the classroom teacher should:

- Establish with the students the instructional intent of the video.
- Be available to answer questions and to clarify points when students are using tapes.
- Explain concepts, especially mathematical ones. A tape may do this differently from the way the teacher usually explains them, so the teacher should be prepared to clarify anything that may confuse the students.

Before attempting to use a videotape instructionally, a teacher should:

- Preview the tape and any accompanying guides or exercises before assigning to a student.
- Preview the tape for ideas for supplemental activities. Exercises can be expanded or new ones created, such as spelling lists, grammar lessons, or writing projects. Spin-off lessons or class discussions can be generated. The teacher may also decide to separate the information presented on the tape into smaller units for use on different days.
- Read publishers' or producers' recommendations for use before showing a videotape, and follow the order suggested. Any unfamiliar vocabulary should be reviewed with the students first, before watching the tape.

Specific Uses

- PRE-PRODUCED VIDEOTAPES

Several uses of videotapes for instructional purposes have already been mentioned. Pre-produced videotapes can be used in some very specific ways at different levels of the adult education curriculum.

—English as a Second Language

The most important aspect of video for the ESL teacher is its capability to bring the world into the classroom. Used for this purpose, video is especially valuable when it would be too costly or impossible to take students out into the world, which is often the case in adult education programs operating with limited funds.

By bringing the world into the classroom through video, the ESL teacher can easily demonstrate cultural concepts and naturalization skills. Language can be reinforced by depicting its use in a typical situational context, such as ordering a meal in a restaurant, shopping for food in the supermarket, or registering a child for school. Video is also an interesting and easy way to illustrate vocabulary and to teach language structures.

—Adult Basic Education

Many of the ways video can be utilized in the ESL classroom are applicable to the ABE classroom as well. The visual and audio qualities of video, combined with its capabilities to produce graphics, are especially useful with low-level readers who need to match sound and concept with the written symbol. Video is also ideal for teaching or reviewing single concepts that the teachers often find themselves repeating, such as the reduction of fractions or the placement of a decimal point. Students can stop the tape and replay parts as often as needed without delaying the rest of the class. Its use for this purpose saves the teachers time and frees them to work on other skills with other students, a valuable feature for use in multilevel classes.

—General Educational Development

Video can play an important role in developing critical thinking and writing skills in preparation for the Tests of General Educational Development, which leads to a

High School Equivalency (HSE) diploma. For example, a videotape on a controversial topic could be used as an impetus to initiate discussion during the brainstorming stage of the writing process. Also, video programs can provide a review of specific skills in the content areas for individuals, small groups or large groups according to individual needs.

—Life Skills

In classes which teach life skills, single videotapes on a particular topic can be used to stimulate discussion, as well as supplement instruction. A commercially-produced videotape series, such as *Adkins Life Skills Program*, can be used as a guide by which the course is structured.

Television Broadcasts

Another source of videotaped materials, often overlooked, is broadcast television programming. Programming such as news, documentaries, and theatrical productions can be taped on home or school VCR's for classroom use to supplement instruction and to expose students to current events, science, literature, and other content-related subject matter that might appear on the GED Test. It is often possible, especially in the case of PBS programming and in-depth network news programming, to send for a written transcript of the entire program for a nominal fee. The transcript can be used as a reference and for generating learning activities for use before and after viewing.

Adult education programs which are located in a cable television franchise area may find classrooms already wired for cable TV or be able to arrange for classrooms to be wired to receive cable television. Students could then watch selected educational and cultural programs on PBS and other educational channels on a regular basis. By viewing live proceedings on C-SPAN (Cable-Satellite Public Affairs Network) of the U.S. House of Representatives, students could see how their own representative votes on an issue. They could also listen to citizens and government officials testify during House subcommittee hearings on issues that may be of interest to the students.

Cable companies may agree to wire classrooms free of charge. The rental of a converter box is not needed to receive the first thirteen channels. Therefore, after the initial wiring, there would be little or no charge, depending on the agreement worked out with the cable company.

Videotape Production as a Class Activity

With the availability of a video camera, microphones, and a videotape recorder, videotapes can be produced by the students themselves. Videotape production can be an extremely powerful instructional tool. Its value is multifold.

- It provides a group activity well suited to multilevel classes because there is something for each student to do in the production process, including the nonreader.
- It teaches content as well as provides practice in communication skills related to the production process: discussing and exchanging ideas, conceptualizing, writing, reading, and editing.
- It requires that students use many of the same skills needed for reading comprehension, writing, and critical thinking: focusing on a main idea or topic, sequencing events, drawing conclusions, paying attention to detail, organizing ideas, developing a story line, etc.
- It develops many of the same interpersonal skills needed to be successful in the workplace, such as working together, leading and organizing others, and following directions.
- It provides exposure to and an understanding of an occupational field (television production).
- It provides practice in some of the technical skills related to that occupational field: camera operation, video recording, audio mixing, directing, producing, etc.
- It can be used to tap the often hidden creative,artistic, and expressive abilities of students, such as drawing, acting, announcing, and music.
- With the production of a tape, the students will have a sense of pride and accomplishment.

Although having the capability to edit videotape gives a production a more polished and finished look and provides more creative possibilities, it is not always necessary. There are in-camera editing techniques which can be employed during shooting, and there are many video production projects that can be done with one camera. Some possible solutions for getting students' tapes edited include contacting the school district's media center or a local university or college's media department to see if their students will edit them for practice. Again, a local cable television system which has production facilities for public use is a possible source of editing.

Video production as a class activity can be done on many different levels, from the simple to the complex. Likewise, the subject matter can be varied. However, students are more apt to be interested in a topic in which they

are personally involved. A documentary or an investigative report of a community issue would not only provide the subject matter for a videotape, but producing it would heighten the students' awareness of a public issue which affects their lives. By interviewing officials and citizens representing different sides of the issue, the students would develop a better understanding of the political process at the local level.

It is possible for a videotape produced by students to have a value of its own beyond the process of producing it. As a result of suffering discrimination by their fellow tenants in a public housing project, a class of ESL students in Boston produced a videotape documenting what it is like to be an immigrant and the problems immigrants encounter in this country. The videotape was shown to various groups, including the tenants' association. As a result, public awareness was raised, community relations improved, and the students felt less alienated and more in control.

There are many other types of videotapes students can produce which can have an intrinsic value of their own. A few examples are:

- A brief orientation tape from a student's point of view for new students coming to their adult education program.
- A video directory of services offered by various community agencies, such as childcare, drug counselling, and job training.
- A monthly news show about the adult education program, with a segment devoted to recognizing students who have made some progress or achievement, e.g., all students who passed the GED exam that month. Another segment can include human interest stories about students who have special interests, occupations, or hobbies outside of school. Likewise, students with special talents can demonstrate them on tape for other students.

Video production is an excellent vehicle for teaching writing skills. Not only does video production itself require a lot of writing (scripting, formulating interview questions, writing camera directions, etc.), but it involves many of the same skills and stages involved in the writing process (brainstorming, exchanging of ideas, conceptualizing, writing, revising, editing). Like writing, the final stage, publishing, is extremely important. Students will place much more value and importance on a project if they know it will be seen by others.

Some means of "publishing" student videos, such as in-house viewing at the adult education center, have already been mentioned. For topics of general or community interest, getting them shown on a local public access channel should be explored. Topics of interest to a very specific audience, such as, "How to Solve Landlord-Related Problems," could be shown in settings where the intended audience is likely to be gathered, such as tenants' association meetings.

Role Playing and Role Modeling

A video camera can be put to use in a life skills class for role playing and role modeling purposes. This type of use is not considered production because the camera is set up in one place, without an operator, simply for the purpose of recording what is happening. The resulting tape is played back for self-analysis and group critique.

The most common use of video for this purpose is to practice job interviewing. One student plays the interviewer, which heightens his/her understanding of the type of questions a real employer would ask. For the student being interviewed, the activity is a self-realization of how he/she looks and sounds to others. If the tapes are saved and not erased, the students can watch themselves improve over time by comparing successive interviews to earlier ones.

Although it is a very effective tool for self-appraisal, initially the student may be very apprehensive about being taped. To eliminate some of the initial fear, the camera should be set up away from the rest of the class, so students can be taped without the other students watching. At first, the teacher can play the part of the interviewer until the students become familiar with the role. Students may be upset the first time their interview is played back because they will not be accustomed to seeing themselves as others do. Therefore, it will be more comfortable the first time to play back the tape so that only the student being interviewed sees it. Later, as students become more comfortable with each other, playback can become a class activity to initiate discussions about interviewing.

Role playing, with playback on video, is also a technique which can be used in other life skill classes, especially those which deal with values and social behavior. Some students have a natural flair for playing other personas, and they enjoy doing it. Others will be reticent and uncomfortable doing it but will learn from simply observing. Recording a role-playing session on tape allows the teacher to refer back to particular behaviors expressed by the "actors" for class discussion.

Role playing on videotape is a natural for ESL students to practice language structures in their social contexts. Video can also be used for modeling pronounciation and inflection. Students will be able to hear how they sound as compared to a fluent speaker of the language.

ALTERNATIVE INSTRUCTIONAL DELIVERY SYSTEM FOR HARD-TO-REACH POPULATIONS

Overview

Instructional videotapes delivered by either a cable television system or broadcast signal can provide an alternative instructional delivery system for undereducated adults not served by adult education classes. Hard-to-reach populations cannot or will not attend more traditional classroom programs for many reasons, including:

- Physical handicaps.
- Lack of child care.
- Lack of transportation, especially in rural areas.
- Job conflicts.
- Institutionalization or incarceration.
- Fear of embarrassment.

One solution for serving those who cannot come to class is to take instruction to them. A home-study course, such as GRASP (Giving Rural Adults a Study Program) is one method to deliver instructional services; televised instruction is another.

What Is Needed

- INSTRUCTIONAL VIDEOTAPES

  In order to offer televised instruction the adult education provider must first obtain instructional videotape programming. There are several ways to do this. They include:

  —Buy, rent, or obtain for free, pre-produced videotapes.

  —Self-produce instructional videotapes which are taped for showing at a later time.

  —Self-produce instructional programming which is broadcast "live."

- ACCESS TO TELEVISION OR VIDEO DELIVERY SYSTEM

  Some possible delivery systems are:

  —Cable television access channel (public, educational, or lease).

  —Broadcast television channel (network affiliate, independent, or PBS).

  —Video playback equipment on-site, e.g., VCR in student's home; VCR set up in public location, such as library or institution.

Both cable and broadcast signals have been used in the past. Broadcast signals generally reach a larger number of homes than cable systems do. On the other hand, because of the availability of public access channels, cable systems are generally more receptive to playing programming. However, in both Baltimore and St. Louis, local network affiliates have aired adult basic education programs, produced in cooperation with the local school district, for a number of years. In 1986, in an effort to help combat illiteracy in the United States, the PBS Network began broadcasting Kentucky Educational Television's GED Telecourse as a pilot project. PBS provided the delivery system with the expectation that local literacy providers would coordinate the accompanying services: recruitment, testing, tutoring, and distribution of materials. PBS plans to follow this effort with more programming for undereducated adults.

The major drawback in using video playback equipment as a delivery system is that each site must have equipment and be supplied with copies of the videotapes. For example, each student with a home VCR would need copies of the videotapes. With cable and broadcast delivery systems, only one copy of each program would be needed at the point of broadcast.

- OTHER CONSIDERATIONS

To make an instructional delivery system as successful as possible, there are several other considerations to be made.

—Promotion and Recruitment of Students

The promotion of alternative programs to recruit potential students is essential because the primary targeted audiences for these programs are adults who are not being served by any other educational program. Any of the media can be utilized for this purpose: print, radio, television, etc., but the message should be aimed at the targeted audience. Therefore, promotional materials which show how obstacles preventing them from attending classes can be overcome would be the most effective. Recruitment efforts should begin at least one month before the television course begins in order to allow ample time for registration.

—Registration

The four main purposes for registering students are:

* To administer diagnostic tests to verify that the course is academically appropriate for the student.
* To discuss students' test results with them, so they know what their strengths and needs are and what skill areas they have to concentrate on to attain their academic goal(s).
* To distribute materials which accompany the televised or videotaped lessons (books, assignment sheets, program viewing schedules, etc.) and show students how to use them.
* To gather data from the student and establish records which can be used for follow-up purposes and for generating funding to cover the costs of the program.

Registration for televised instruction can be done at the adult education center by the same staff members who normally do intake and registration.

It has been found by an adult education program, which has administered a GED telecourse for ten years, that students who are motivated enough to appear in person to register and test are more likely to complete the program than those who are sent the books and who do not test.

—Diagnostic Testing

Diagnostic tests given to prospective telecourse students should be appropriate for evaluating the skills students will need for the particular course being offered.

Those applicants who do not meet the academic requirements of a telecourse should be referred to another adult education program which is more suited to their abilities.

—Dissemination of Videotapes and Accompanying Materials

Adult education centers offering a telecourse can provide all the accompanying materials, such as guide books, workbooks, assignment sheets, program schedules, etc., free of charge to the students, or they also can require that the students pay for the books. However, providing free books has proven to be an incentive for potential students to come to registration and complete the academic evaluation process. One of the problems associated with offering televised instruction is making contact with and keeping track of students for funding purposes. Adult education centers can receive Employment Preparation Education (EPE) funding for telecourse students who they can prove were serviced by their agency.

Providing videotape copies of lessons for students watching the programs at public sites or on their own VCR's is a greater problem. Either numerous copies of the programs must be made available for each site, or in the case of home viewing, for each student; or a system of "bicycling" the tapes has to be established. In a "bicycle system," not all sites or students receive the same tape, i.e., lesson at the same time. Tapes are passed on from one site or student to another on a systematic rotating basis. A "bicycling system" requires a considerable amount of paperwork and coordination to be successful.

If possible, an alternative to the "bicycling system" could be made available to students with home VCR's. Those participating in a telecourse could supply the adult education center offering the course with blank tapes. In turn, the center would make copies of the video lessons for the student on the blank tapes. This particular delivery system requires that:

* The students are willing to cover the cost of tape stock.
* The center has the means to make multiple videotape copies of the telecourse lessons.
* The lessons are not restricted by copyright laws preventing copies from being made.

An advantage of this arrangement for the students, which might compensate for the cost involved, is that because the students own the tapes, they can view the lessons as often as they like, at their convenience.

—Tutoring

Because televised or videotaped instruction provides no way for student and teacher to interact, this component must be provided by some other means. The easiest and most direct way to answer students' questions and help them with their problems is to provide a tutoring system via the telephone. Like

television, the telephone provides a way to reach students who cannot come to classroom programs.

The tutor(s) should be available to the students the same time of day or week that they watch the lessons, i.e., weekday, evening, or weekend, in order to make tutoring convenient for them and to avoid possible conflicts with jobs, family, and other responsibilities. The tutor does not need to be available during the telecasts, since all the student's attention should be focused on the televised instruction; however, it is wise to have a tutor available immediately after the telecast to answer any questions about the lessons themselves.

The tutor should have experience in teaching the subject matter or the skill level represented in the telecourse to adults. The tutor should also preview all the lessons and accompanying printed material before the lessons are telecast. Depending on the student load, (number of students registered for the telecourse), the tutor can be a full-time or part-time employee. The telecourse can be the tutor's only responsibility or one of several. If the center has a GRASP program (Giving Rural Adults A Study Program), a convenient and economical solution might be to have the GRASP instructor also be the teletutor, since the two jobs are similar.

Another way to interact with telecourse students is possible when the course is broadcast "live." A call-in component can be built into the telecast; students call in with their questions and the telecourse instructor answers them on the air during the broadcast. A live call-in component can deal with students' immediate questions, but it cannot handle problems students will encounter later while doing their assignments. Therefore, the best solution is to have both: a live call-in during the lessons and tutoring by telephone after the telecasts. Tutoring is needed for another reason. The live call-in is not appropriate for all students; some are too intimidated or concerned about being recognized, but they will call immediately after the program goes off the air.

—Follow-up

There are several ways to keep track of telecourse students and to follow up on their progress. When registering for a General Educational Development level telecourse, each student should be asked to complete an application for the GED exam. The application should be submitted for the first exam to be given after the conclusion of the course. This process gives the center offering the telecourse the information necessary for getting GED exam results, which will also give them the means to generate funding to recover the cost of the telecourse.

The tutoring component also provides a way to keep track of students and their progress. However, from past experience, it has been found that adults in GED telecourses are often reluctant to call their teletutor. Therefore, it is recommended that a more aggressive approach be taken by the tutor. The tutor should initiate the tutoring relationship by calling each student the first week to find out if there are any problems or questions. After the initial call, each student should be contacted at least once a week by the tutor for the remainder of the course, unless the student calls first.

It has also been found that students will participate in a GED level telecourse all the way through to the last lesson, and then not take the GED exam because they are afraid of failing. One of the reasons for having students complete a GED exam application at the time of registration is to make sure the student makes a commitment to take the exam. This also helps each student to set a specific goal with a specific length of time for meeting that goal. The number of students completing the course without taking the GED exam is far less when they make this commitment than when they are allowed to wait until the last minute to sign up for the exam. The problem is not alleviated entirely, however, so it is helpful to have the tutor make a final call to students to encourage them and to give them final, helpful hints about how to prepare for the exam.

—Cost

The cost of offering a telecourse will vary from situation to situation, depending on the delivery system used, the source of instruction, the number of students served, the cost of accompanying materials, the pay scale of instructional and clerical staff, and the related services provided to complement instruction. The following are categories which should be considered when estimating the cost of providing a telecourse for hard-to-reach populations:

- Type of delivery system

  Broadcast or cable television: For adult education programs which are not associated with educational

access channels, it should be possible to make arrangements with a local broadcast station or with a cable system to provide time or access on a channel as a public service. It might also be possible to negotiate with a PBS station to broadcast a telecourse if enough community need and support is demonstrated.

If a free delivery system is not available, purchasing time is a consideration. Buying time on a network affiliate broadcast station would be prohibitive, but it may be possible to buy time on a cable lease access channel at a much more affordable rate.

Playback equipment at public sites or students' homes: The cost of setting up playback equipment, a videotape player or recorder and a television, at a public site is approximately $1200.00 per site if tapes are used. If a broadcast or cable system is used to deliver the lessons to a public site, only a television receiver is needed, which costs approximately $400.00 for a 19" color model. It is assumed the cost of home equipment would be the student's responsibility.

If the public sites chosen do not already have the capability of receiving either cable television or the appropriate broadcast signal, the cost of installing cable or an antenna must also be figured into the cost of the delivery system.

Other expenses which need to be considered in this type of delivery system are raw tape stock and the labor needed to make duplicate copies of the lessons.

* Source of instruction

Commercially-produced videotapes: There are three major costs involved in buying commercially-produced instructional videotapes. They are the cost of buying a single set of tapes, a copyright fee to cover duplicating (if extra copies are needed for several sites), and a copyright fee to cover broadcasting or cablecasting. This fee is usually based on the number of households (i.e., potential viewers) reached by the broadcast signal or cable system. The purchase of a set of tapes is a one-time fee, since the same tapes can be used a number of times, but the copyright fees are charged each time the tapes are copied or telecast.

Noncommercially produced videotapes: In general, videotapes produced with public funding, such as videotapes produced by other adult education programs, cannot be copyrighted. However, nonprofit fees can be charged to recover the cost of production and duplication.

Self-produced live telecasts: The production costs of live telecasts are somewhat cheaper than pre-taped lessons because there are no re-takes during the taping process and no editing is done. However, unless the lessons are recorded for later use at the same time they are telecast, a live telecourse is less cost-effective in the long run. One of the most cost-effective features of videotape is its capability of being used over and over again.

Self-produced videotapes: If the source of instruction is to be self-produced videotapes, the cost of producing or creating the lessons should be factored into the cost of offering the telecourse.

Production costs are very expensive, even when production facilities are available or accessible; however, when averaged over the life of the telecourse, the finished product becomes much more cost-effective. The cost could be lower if a consortium of adult education programs who need the same product was formed to share the cost of production. Some of the production costs can be recovered by charging other adult education programs a not-for-profit fee for copies of the tapes. The more the tapes are used and the greater the number of the target audience reached, the more cost-effective the tapes become.

Production-related costs can be broken down into the preproduction expenses of employing a producer to oversee and coordinate the production of the telecourse; preparing a curriculum and writing lesson content; writing and typing scripts; obtaining a television instructor and other on-camera talent (actors, etc.); and designing and constructing graphics, sets, and other props needed during tapings.

Production costs would include videotaping footage on location, i.e., outside of a studio (crew and equipment); videotaping in a studio (facility, crew, and equipment); and videotape stock.

Post-production costs would cover editing (facility,

editors, and equipment) and videotape stock. Added to these expenses would be the cost of duplicating copies from edited master tapes (labor and videotape stock).

In addition, if the videotapes are designed to be supplemented with other instructional materials, the following expenses need to be budgeted for: workbooks or guide books which accompany commercially-produced instructional videotapes; duplicating costs of non-commercial workbooks and guide books; labor to design, write, type, and print self-made materials, such as exercises, assignment sheets, programs schedules, and registration forms; office supplies, such as paper and folders; and standardized test booklets and response sheets for diagnostic testing.

* Registration Personnel

Staff to register and test prospective telecourse students will be needed to cover a three- to four-week period prior to the start of the telecourse, unless existing intake and guidance personnel are used for this purpose. Even when existing staff are used, it may be necessary to hire them for additional hours to cover special registration periods during times when the center is not usually open, i.e., weekends or evenings.

Another related personnel cost is staff to answer telephone calls generated by the promotional campaign, unless the existing staff is adequate.

* Tutoring

If a tutoring service will be offered to supplement televised instruction, a tutor or tutors will have to be hired for the duration of the telecourse. It is recommended that the tutor(s) begin work a month before the telecourse begins. During that month, the tutor(s) can preview the taped lessons, prepare supplementary materials, and help with registration, which will include showing students how to use the accompanying materials and explaining how the tutoring system will work.

* Promotion

Promotion is one of the most important components of a telecourse and should be a key budget item. As many promotional efforts as the budget and available resources allow should be employed. Many of these are free, such as news releases, radio and television Public Service Announcements, radio talk shows, television public service programs, announcements on cable television message channels, and flyers posted in public places. Another way to promote telecourses at no charge is to send flyers and packets of information to other service-oriented agencies who serve the same targeted population, so they will pass the information on to their clients. This type of agency might include county social service departments, mental health institutions, and centers for the handicapped.

Two of the most expensive forms of promotion are newspaper ads and direct mail.

In addition to the cost of the promotion itself, funds must be allocated to cover the cost of a person or persons to produce the different forms of promotion and to coordinate the promotional effort.

SOURCES OF INSTRUCTIONAL VIDEOTAPES

Sources of instructional videotapes include commercial vendors, educational institutions, and nonprofit producers. However, there is a scarcity of instructional videotapes produced primarily for the adult reading below the high school level. Many videotapes for low-level readers were designed for children, so they are too juvenile to be used with adults. There are several sources of undergraduate level videotapes which can be used with life skills students and GED students for content enrichment. Most sources allow a sample lesson to be previewed, so it is possible to evaluate the appropriateness of the tape for adult students before purchasing it. The producer or distributor of the tape should be contacted to find out if this use of the tape (telecasting) is legal and what copyright fees might be involved.

Some possible sources of instructional and educational videotapes are:

- SELF-PRODUCED

As already discussed, self-production is possible only if the adult education center owns or has access to production equipment and facilities.

- ALBANY EDUCATIONAL TELEVISION

Funded by the New York State Education Department as a Statewide 310 Project to serve the video-related needs of New York's adult education providers, AET has a catalog of over 150 videotapes which are available to adult educators in three formats: 3/4", VHS, and BETA I. Topics include basic skills, consumerism, government and law, health and safety, occupations, and the arts. All titles can be cablecast or broadcast.

AET also has complete production and editing facilities in the 3/4" format and experienced production staff. Both the facilities and staff may be contracted to produce instructional videotapes for other adult education programs. Contact:

Albany Educational Television
27 Western Avenue
Albany, NY 12203
518-465-4741

- CENTER FOR LEARNING TECHNOLOGIES

Part of the New York State Education Department, CLT has a library of videotapes available to educators, some of which would be appropriate for adult education students. CLT's holdings include a number of videotapes donated by PBS stations for use in schools. To cover the cost of duplication and distribution, a fee is charged for all tapes ordered. The fee includes the cost of the tape stock. Educators who want to preview tapes must provide their own tape stock and pay a $20.00 fee for each tape to be previewed. Contact:

Center for Learning Technologies
Media Distribution Network
Room C-7, Concourse Level
Cultural Education Center
Albany, NY 12230

- INTERNATIONAL TELECOMMUNICATION SERVICES, INC.

This company produces *Math-Lab*, which contains seventy-five 15-minute lessons designed for supplemental instruction at ABE levels 4-8 (15 lessons per level). Contact:

International Telecommunication Services, Inc.
2492 Freetown Drive
Reston, VA 22091

- KENTUCKY EDUCATIONAL TELEVISION

KET is the producer of a 43- lesson GED Telecourse to prepare adults in the reading, math, and writing skills needed for the GED exam. A set of three workbooks accompanies the telecourse. The videotapes are available for purchase, rental, cablecasting, or broadcasting at a variety of rates. The lessons were designed for use both in the classroom and as part of an alternative instructional delivery system. Contact:

Kentucky Educational Television
600 Cooper Drive
Lexington, KY 40502

- LAKESHORE U.T.A.E. DISTRICT

This company distributes *Video Career Awareness LES and ABE*, four 30-minute videotapes available with sound tracks in either Hmong, Spanish, or English; available for classroom or cable TV. Contact:

Coordinator of Special Educational Services
Lakeshore U.T.A.E. District
1290 North Avenue
Cleveland, WI 53015

- OPERATION LIFT

Operation Lift offers *Readers' Guide*, one hundred 30-minute videotapes designed to teach reading to adults at 0-6 grade level. Contact:

Operation Lift
1309 Main Street
Suite 708
Dallas, TX 75202

- PUBLIC BROADCASTING SYSTEM

PBS stations broadcast a wealth of educational programming suitable for the GED level student. Programs can be viewed in class as they are broadcast, or videotapes can be purchased directly from the producers of the programs. Many of the programs shown on the PBS Network are produced by Maryland Public Broadcasting, WNET (New York City), WGBH (Boston), and WQED (Pittsburgh).

In 1986, PBS stations broadcast the KET GED Telecourse as part of a pilot project. Local adult education providers coordinated the supplementary services (registration, tutoring, distribution of books, etc.). If PBS's commitment to adult education continues, adult educators will be able to use PBS as an alternative instructional delivery system in the future.

- TECH NET

Tech Net has produced fifteen instructional videotapes for ABE levels 4-8. Contact:

Central Susquehanna I.U. #16
P.O. Box 213
Lewisburg, PA 17837

- THE LEARNING CHANNEL

TLC is a satellite service of educational programs that is carried by many cable television systems. Its offerings include career and life planning, personal enrichment courses, basic mathematics, and undergraduate level telecourses in American history, anthropology, science, and computers. TLC is designed specifically for adults, and many of its programs would be appropriate for life skills and GED students.

Programs can be viewed as they are cablecast, and many offer limited off-air recording rights. Videotape copies of the programs can be purchased and/or rented directly from the producers. The majority of TLC's programs are produced by Miami-Dade Community College, Coast Colleges (California), and Dallas County Community College District. Contact:

The Learning Channel
1414 22nd Street, N.W., Suite 200
Washington, DC 20037

- WNVT

English, Yes! is a series of sixteen 30-minute videotapes, locally produced for Vietnamese and Cambodian refugees living in the Washington, DC/Northern Virginia area. It contains conversational forms and vocabulary organized around basic cultural information and survival language and cultural information designed specifically for refugees at elementary to intermediate levels. Contact:

Director of Educational Services
WNVT
8325 Little River Turnpike
Annandale, VA 22203

Commercial Sources

Some commercial sources of instructional videotapes and titles that have been popular in adult education programs include:

- CAMBRIDGE, THE ADULT EDUCATION CO.

Just Around the Corner: forty-five 15-minute videotapes; competency-based, broadcast quality video instructional program developed by the Mississippi Authority for Educational Television. It contains skill development in reading, writing, speaking, computation, and problem solving in the five life skills areas established by the Adult Performance Level Project. The videotext and the User's Guide have also been recently revised. Contact:

Cambridge
The Adult Education Co.
888 Seventh Avenue
New York, NY 10106

- EDEX CORPORATION

Preparing for the High School Equivalency Examination: twelve 45-minute tapes; reviews the basic skills needed to pass the GED exam. Contact:

Comex System, Inc.
The Mill Cottage
Mendham, NJ 07945

- IMAGE WEST, LTD.

Read-A-Vision: sight/sound techniques on video for adults with reading problems, people learning a second language, and the hearing impaired. Contact:

Elayne Blythe & Associates
7080 Hollywood Blvd. #312
Hollywood, CA 90028

- TIME-LIFE MULTIMEDIA

  Speak for Yourself: thirty 30-minute ESL videotapes; elementary to low intermediate; produced by Edutech Enterprises. Contact:

  Time-Life Multimedia
  Distribution Center
  100 Eisenhower Drive
  Paramus, NJ 07652

- TIME/LIFE VIDEO

  Reading Efficiency: twelve 30-minute programs; training course designed to improve reading and job skills, featuring Bill Cosby; for adults reading at 6th-grade level. Contact:

  Time/Life Video
  1271 Avenue of the Americas
  New York, NY 10020

- THE INSTITUTE FOR LIFE COPING SKILLS, INC.

  Career Development Series: 10 units focus on pre-employment skills; free staff development workshop. Contact:

  Institute for Life Coping Skills, Inc.
  Teacher's Colleges
  Columbia University
  525 W. 120 Street Box 138
  New York, NY 10027

Very few commercial vendors, such as book companies, sell instructional videotapes in the skill areas of reading and math for ABE- and GED-level adults. There are, however, quite a number of videotapes on the market which cover career/occupational and adult performance level related skills, e.g., consumer economics, the law, health, community resources, etc.

A good source of videotapes which can be used in adult literacy programs is the *Literacy Video Resource Guide*, compiled by WQED (Pittsburgh) and Pennsylvania State University, which includes both commercial and noncommercial producers. In addition to instructional videotapes for ESL/ABE/GED, the Guide includes a large number of staff-development, documentary, and promotional tapes. The Guide can be obtained for $5.75 (prepaid) by writing to:

PLUS National Outreach
c/o WQED/Pittsburgh
4802 Fifth Avenue
Pittsburgh, PA 15213

STAFF DEVELOPMENT AND TRAINING

VIDEO UTILIZATION

Video has many staff-development and training applications in adult education programs as well as instructional and promotional uses. It can be used to:

Keep Staff Current on Developments in Adult Education

The State Education Department's Bureau of Adult and Continuing Education Program Development funds the production of a videotape newsletter, *Continuing Education Update*, for this very purpose. Produced bimonthly by Albany Educational Television, *CEU* is available free of charge to all literacy coordinators in New York State. *Continuing Education Update* is a 30-minute, magazine-style program designed to keep coordinators updated on State Education Department policy, legislation, and funding which will affect their programs. It also provides the Education Department with a standardized method of disseminating information to the field quickly and it provides literacy programs with a way to share information with their counterparts. In addition to the policy and legislation segment, each edition contains four other segments: a look at an innovative program currently being funded; an interview with someone who has worked in or contributed to the adult education field; the most recent curricular resources and materials being developed by the Education Department, local programs, and commercial vendors; and a calendar of regional and national professional conferences and workshops.

Originally intended as a professional update for administrators, *CEU* has proven to be a successful means of staff development as well. Several administrators

share each edition or particular segments with their staff.

Orient New Staff

Video is a convenient way to orient new staff, especially for literacy programs with high staff turnover rates. Videotapes used for orientation purposes can include such topics as an overview of the program and all the services it offers, agency procedures, and in the case of new adult education teachers, an explanation of the type of student they will be teaching.

Introduce Staff to New Requirements or Train in Procedures

An example of this type of application is the videotape, "The Writing Sample," produced by Albany Educational Television in response to the new GED writing sample requirement. The tape introduces teachers to the new requirement and the method of scoring used to evaluate the student's writing.

Video is an especially good medium for situations in which the majority of the staff needs to be trained quickly. If staff members are not present on the day training is conducted, they can make up the training by viewing the tape at a later time.

Bring a Training Workshop Back to Staff Who Could Not Attend

Funding for travel and training is often limited in adult education programs, so it is seldom that all non-administrative staff are able to attend regional and national workshops and conferences. Video is a way to bring workshops to the staff.

Follow up or Review What Was Taught at a Workshop

When staff do participate in workshops, it may be several weeks before they have the opportunity to apply what they have learned. Video gives them the opportunity to review what they learned.

Disseminate Information from One Program to Another

Curricular materials and innovative programs produced by one adult education program need to be disseminated more widely to other programs that could use them. Videotapes used to disseminate parts of a project can be descriptive (a narrator describes the project) or documentary. The latter may be more useful for trying to replicate what a project has done, since viewers will be able to get a better idea of how it works by seeing it in action.

Present a Standardized Message

Often, breakdowns in communication occur in an organization when employees are getting different, inconsistent, or incomplete messages from various staff members about how things should be done. The problem worsens over time as new variations of the inconsistencies occur. Videotaped staff development or training helps to alleviate this problem by providing each staff member with exactly the same message. Because videotapes can be used again and again, each new employee receives the exact same training message that the existing staff received.

Save Time and Money

Videotaped staff development and training can save both time and money. For example, videotape copies of a training presentation can be sent directly to the intended audience at their work site. Bringing staff development and training to employees rather than having them travel to a workshop makes it more convenient for employees and saves a considerable amount of money normally spent on travel-related expenses.

From the trainer's point of view, it also saves time and money for similar reasons. The trainer only has to make the presentation once, when it is recorded on tape. The trainer does not have to travel to many different sites, so again travel expenses are eliminated. More importantly, a greater number of people can be trained simultaneously, so the message is disseminated to the field in a timely manner.

The only drawback to using video for training and staff-development is the lack of interaction between the trainer and the intended audience. This problem can be dealt with in various ways.

- An experienced staff person who has already been trained can be designated at each site to answer questions after the videotape has been shown.
- The travel time saved during the training period will free the trainer to spend more time on follow-up visits during the implementation phase to help resolve problems the trainees encounter when they try to apply their training to real situations.

- A teleconference delivery system can be used for videotaped training rather than sending pre-taped video copies to each site. The training is sent out "live" via a broadcast or satellite signal to local sites designated ahead of time to receive the teleconference. A call-in component with a toll-free number is built into the teleconference, so viewers can call their questions in to the trainer. What is lost in convenience (all trainees must watch at the same time), is compensated for with the ability to interact. If there are scheduling conflicts and not all staff can be released at the same time to participate, the telecast can be recorded off the air for viewing at a later time.

  Although teleconferencing can be less expensive than requiring either trainers and/or staff to travel to regional and state workshops, it is most cost-effective when used with large targeted audiences. It is an excellent delivery system for providing in-service training to state or national professional organizations.

Videotaped staff development and training can also save time in local literacy programs. New staff can be trained as soon as they are hired. They do not need to wait for an administrator or supervisor to be free to train them. They can watch tapes independently with an experienced staff person available to answer questions and clarify information presented on the tapes. The capability of videotapes to train new employees immediately is less disruptive to the program. New teachers are then free to "learn the procedures" with minimal time loss and a smoother transition is provided for the student.

One of the medium's best assets, flexibility, makes it ideal for staff development. Tapes can be viewed at any time, by individuals, small groups, or larger groups. They can be viewed independently or in a structured setting. Flexibility is an especially important feature in adult education programs in which there is a high turnover rate of instructional staff and in which new staff come from a variety of disciplines and backgrounds -- some with no experience in working with adults.

PURCHASING EQUIPMENT

For adult education providers who wish to introduce the videotape medium into their programs, there are several factors to consider before purchasing equipment. Time spent in carefully thinking through these decisions will make the difference between equipment which is used effectively and that which is not. The most expensive equipment is that which is never used. The least expensive equipment is that which affects the adults being served in a positive manner, improves the quality of instruction, or saves the staff time. Items to be considered before purchasing equipment include:

USE

What is the proposed use of the equipment? These questions should be asked:

- Will it be used for playback only, or for recording, or both?
- Will recording capabilities be needed only to make copies of tapes, or will original productions be done?
- Will tapes be produced for in-house use only, outside use, for broadcast, or a combination of two or more uses?
- Will tapes be produced by staff with prior video production experience, by staff with no production experience, by students, or by a combination of all three?
- Will students be operating equipment, only staff, or both?
- Will the primary viewer be staff, students, outsiders, or a combination of viewers?

APPROPRIATE QUALITY AND FORMAT FOR USE

Once all the various uses are determined, the next step is to decide on the quality and format best suited for the proposed use(s) of the equipment.

The choice of equipment is determined by the tape format to be used. Tape format is defined by the width of the tape (e.g., 1/2" vs.1"), the way it is packaged (e.g., open reel vs. cassette), the way the tape wraps around the recording heads of the machine (e.g., VHS vs. Beta), and in some cases, the speed at which it records (e.g., Beta vs. Beta- cam). For example, both VHS and Beta are 1/2" tape formats, but neither is compatible with the other. A Beta tape will not fit into a machine designed to play or record a VHS tape.

There are three levels of quality of video equipment, all varying in price: consumer, industrial, and broadcast. The level of quality chosen will be determined by the proposed use of the equipment and the amount of funding available to purchase equipment.

Consumer quality equipment is the least expensive of the three. It is the same equipment sold for home use. It includes the 1/2" formats (VHS and Beta) and one-tube cameras. The cameras have been improved over the years so they will give an image under most existing light conditions. What consumer equipment lacks in technical quality, it makes up for in extras to make it more convenient for the user, such as remote operation and in-camera effects (fades, character generation, etc.). These effects are added to increase the user's production capabilities because the consumer line does not have as many editing capabilities as the other two do, and the home consumer is not likely to pay the added cost of editing equipment.

The consumer line is the easiest to use and requires the least amount of technical knowledge on the part of the user. It is a good choice for adult education programs that want playback capabilities only or that want to use a camera for recording purposes only, e.g., role playing and job interviewing, or for classroom productions. If in-house productions requiring editing are anticipated, a compatible editing system will also need to be purchased.

There is no appreciable difference in quality between the VHS and Beta formats; however, if compatibility with other institutions' tapes or equipment is a consideration, it should be known that of the two 1/2" consumer formats, VHS has at least a 75 percent share of the market and Beta has no more than 25 percent.

Consumer quality equipment is not a good choice for programs that want to produce videotapes to be broadcast, e.g., promotional tapes or instructional series. Broadcasters will not accept formats smaller than 3/4". Nor is it a good choice for centers that want to produce tapes from which copies will be made and disseminated to other programs. The smaller the format, the poorer the quality. Each time a videotape is copied or edited, a generation is gained, which has an accompanying quality loss. The smaller the original format, the greater the loss, proportionately, of quality from generation to generation. Therefore, a 1/2" copy from a 3/4" original is better than a 1/2" copy from a 1/2" original.

Industrial quality equipment falls between the consumer and broadcast lines in both quality and cost. Compared to the consumer line, it is of better technical quality, is more durable, and has more standardized connectors. It is built to be a production workhorse. The most common industrial formats are 3/4", VHS, and Beta. The cameras contain one to three tubes or digital chips; three will produce a better quality picture than one. The cameras have fewer exterior frills than consumer models because the line includes editing systems.

The industrial line is most often used by corporate and educational in-house production departments that have a heavy workload. Industrial quality is a good choice for adult education centers that expect to do a lot of production for themselves or to disseminate their tapes to other adult education programs. The 3/4" industrial equipment is also capable of producing tapes which can be broadcast, as long as high technical standards are maintained.

Industrial equipment is not needed for playback-only applications.

As its name implies, broadcast quality is professional equipment most commonly used for broadcasting. It is the most expensive of the three lines and requires more technical expertise to operate, maintain, and repair.

This professional equipment includes the larger tape formats, 3/4", 1", and 2", and the newer high-speed, small formats, such as Betacam (not to be confused with the 1/2" Beta sold for home use). Cameras in the broadcast line contain a minimum of three tubes or chips.

The only professional format that might be within the purchasing power of adult education programs is 3/4". It is recommended that the professional quality equipment only be considered if the center will be a heavy producer, especially of programs to be broadcast, (e.g., telecourses), or disseminated. An adult education center which plans to establish a video production facility needs to choose between 3/4" industrial and 3/4" broadcast equipment. However, broadcast equipment should not be considered unless there are staff with experience in video production and with the technical expertise to operate and maintain it. Broadcast quality equipment is not meant to be used by amateurs.

Adult education programs which anticipate multiple uses of video might consider purchasing two different qualities and formats; for example, a VHS consumer line for classroom use and a 3/4" industrial line for production.

PORTABILITY

Once the quality and format have been determined, decisions need to be made concerning manufacturers and specific models. Another factor, portability, should be considered when deciding on the specific model. If equipment does not need to be portable and it will be set up somewhat permanently in one location, then larger, heavier, table-

model videocassette recorders (VCR's) and larger televisions or monitors are more appropriate. The larger televisions (19"-25") are better for group viewing situations, and the size and weight of larger equipment tend to discourage theft. If a camera is to be used only in a classroom situation, it can be a stand-alone model which connects with the table-model VCR and large monitor.

If students or staff will be doing a lot of videotaping outside the classroom, if equipment is shared by more than one instructor, or if equipment must be carried by an instructor to outreach programs, then portability will be a key concern. In order to be portable, equipment must be lighter and smaller. Portable VCR's are smaller than table models and have a shoulder strap so they can be carried easily. Likewise, portable monitors are smaller. It is also possible to buy a VHS-format camcorder, which is a camera and recorder built into one unit—an excellent choice for instructors who teach at more than one site or for student productions. The unit is compatible with all other VHS equipment. A small, portable, color monitor (5"-10") can also be purchased for production purposes. If the unit is being used to record and then playback in a group situation, a mid-sized (12"-13") monitor with a handle is needed.

If portable "playback-only" capabilities are a consideration, a self-contained monitor/player in the VHS format should be chosen. The screen is 10", which is suitable for individuals and small groups, and the unit has a handle for easy carrying. This monitor/player is ideal for promotional presentations. An administrator can take it to other agencies, school board meetings, the superintendent's office, etc. and show tapes on site. Recruiters can take it to community agencies to show the kind of services the center offers. It is also an excellent instructional tool for itinerant teachers and tutors who work with individual students or with small groups.

STORAGE AND SECURITY

When purchasing equipment, adequate storage should be considered and budgeted for, if necessary. All video equipment is costly to replace. Both the tapes and equipment are targets for theft by employees and students because videotapes can be re-used and because home use has made video popular.

The tapes need to be kept away from dirt and dust, heat (including sunlight), and extremes in temperature. An air-conditioned environment is the most ideal but not always feasible. Tapes should be the same room temperature as the machines in which they are being played. For maximum life, the videotapes also need to be stored in a controlled environment.

Nonportable equipment can be left set up in a classroom if the classrooms are locked between classes and when not in use. An alternative is to buy portable equipment carts which can be rolled into closets with locks. Large metal cabinets can also be purchased to secure both tapes and equipment when not in use.

EQUIPMENT REQUIRED

A breakdown of equipment required for different purposes follows.

Playback Only

- Television receiver or monitor.
- Videotape player or recorder (VCR); VCR is more expensive than a player but is a better choice for the possibility of future expansion of equipment capabilities.
- Appropriate connecting cables: either eight-pin connector or separate audio and video cables.
- Alternative: combination monitor/player unit.

Playback and Recording from a Tape Source

- Two television receivers or monitors.
- One videotape player and one VCR or two VCR's.
- Appropriate connecting cables. Two 8-pin connectors or separate audio and video cables; dubbing cable.

Playback and Recording from a Camera Source (Production)

- Television or monitor, preferably portable.
- Videotape recorder, preferably portable.
- Camera and tripod.
- AC adaptor (for use with electrical power) and/or batteries and battery charger.
- Audio equipment: microphone(s) and earphones (for monitoring).
- Lighting equipment: portable lights on stands or camera mountable light ("sungun").
- Appropriate connecting cables: camera cable (to recorder); audio (from microphone to VCR and from VCR to monitor); video (from VCR to monitor); and cable from AC adaptor to VCR.
- Electrical: extension cords and three-prong adaptors.
- Alternative: combination VCR and camera (camcorder) in place of VCR and camera.

Editing

The following represents the minimum amount of equipment required:

- Two VCR's (or 1 player and 1 recorder), capable of editing.
- Editing controller compatible with VCR's.
- Two television monitors (one for each VCR).
- Appropriate audio and video cables and connectors.

The above equipment will make it possible to do simple machine-to-machine edits in either the assemble or insert mode. It is not capable of doing effects (fades, dissolves, wipes, etc.).

In order to perform more sophisticated edits and edits of a professional technical quality, additional equipment must be purchased, such as a time base corrector, switcher, special effects generator, character generator, audio mixer, audio cassette recorder, etc. The more audio and video sources available, the greater the editing possibilities.

REPAIR OF EQUIPMENT

When buying video equipment, a portion of the budget should be set aside for repairs and maintenance, which will be the major expenses involved once the equipment has been purchased. Not only are repairs costly, but they are often lengthy, making the equipment unusable for weeks and even months. The following are suggestions for keeping repairs to a minimum and securing reliable and prompt service when repairs are needed.

- Buy locally from a factory-authorized dealer with a repair facility. By so doing, shipping delays will not be added to repair turnaround time. A factory authorized dealer has been given the manufacturer's "seal of approval," so service should be reliable. If equipment purchases must be sent out to bid, a clause can be added to the bid which states that bids will only be accepted from factory-authorized dealers with a local repair facility.
- Establish a good rapport with the equipment vendor. It is important to establish a good relationship with the equipment vendor, especially one with a reputable repair shop. Often a vendor will give priority on repair orders to customers who have bought equipment from them. In fact, some vendors will not service equipment which they have not sold. In some cases, vendors will give preferred customers loaner equipment to use while theirs is being repaired.
- Follow manufacturer's recommendations for use. Equipment will break down less frequently if all staff who will be using the equipment read the manufacturer's recommendations for care and use of the equipment. If equipment malfunctions, a technical person on staff or the vendor's service department should be contacted to repair it; inexperienced or non-technical personnel should not attempt to repair equipment.
- Establish a maintenance schedule. There are certain maintenance procedures which must be done periodically (such as cleaning the recording heads) in order to keep the equipment running properly. On consumer quality equipment, the staff may be able to do this themselves. With industrial and broadcast quality equipment, a trained technician should perform all maintenance. If a technician is not available, perhaps a service contract can be written into the bid proposal.

ENSURING USE OF EQUIPMENT

Regardless of the amount of money spent on video equipment, it is worthless if it is not used. There are several steps to ensure that the equipment is used.

Train Staff In Its Use

One of the most common reasons equipment is not used is that teachers are either intimidated by it, or they feel that it's too much trouble to operate. When equipment is first purchased, an in-house workshop should be scheduled to train staff in its proper use. If no one on staff has enough technical knowledge, the vendor can be asked to provide the training. A training component can be written into the bid proposal as a specification.

Make Equipment and Tapes Easily Accessible

For instructional purposes, playback equipment should be set up semi-permanently in designated viewing areas in the classrooms, with copies of the tapes nearby. The tapes should be clearly labelled, on both the case and the tape itself, so that students and teachers can find particular titles quickly and easily. If more than one classroom has to share equipment, it should be set up on a movable cart. All components stay connected to one another; the only thing to be disconnected during moving is the power supply. Some of these carts are available with a closed cabinet on the bottom for storage of a small tape library, a convenient feature if tapes must be shared between two or more classes. It is also helpful to have a printed list of directions for use in the viewing area or attached to the

cart. It is very easy for someone to turn the wrong switch on the VCR or monitor, making the setup inoperable.

The staff should also have a viewing area where they can preview tapes they want to use for instruction and view tapes for their own professional development. The viewing area can be located in a teacher's room or lunch room. By providing headsets, the staff has the option of viewing individually without bothering others.

Provide Security for Tapes and Equipment When Not in Use

Equipment cannot be used if it has been stolen, so security should be a major priority. Means of securing equipment are discussed under "Purchasing Equipment." However, it should be noted that the new portable cameras and VCR's are quite compact and are the most easily stolen of all equipment. Therefore, production equipment, such as cameras, should be kept secure when not in use.

EQUIPMENT RESOURCES

If an adult education program is considering making a large investment in video equipment, especially equipment for production use, it is advisable to determine first what equipment is available. There are equipment expositions held each year in the New York City area, which are geared to the educational and industrial user. These expos provide an excellent opportunity to compare the products of different manufacturers and to obtain some hands-on experience operating them. Literature and current price lists are also available. Workshops in the use of equipment and production techniques run concurrently with these exhibits. Many of the workshops are for beginning level users, and thus are appropriate for learning about video technology.

Albany Educational Television is another resource for obtaining information about equipment. The staff will help determine the proper equipment needed for specific applications and will give suggestions for utilizing the equipment.

COMPUTER TECHNOLOGY

Computer technology has much to offer to the field of adult and continuing education. Yet, adult educators have had reservations about incorporating this technology into their programs. Part of this caution is due to the innovative nature of the technology, and part to the initial criticism that computers would be unsuitable for the degree of human contact needed in adult education.

Recent studies of students using computers, however, indicate very positive interactions. It is now a generally accepted opinion that both micro and mainframe computers can be useful as instructional aids and as management tools. Innovations and constant improvements in computer technology have made "user-friendly" a significant term. This section describes the present status of computers in adult education and, in particular, the application of computers to adult education in New York State. It also includes practical guidelines for introducing computers into adult education programs.

The following information indicates that computers complement the characteristics of adult learners:

- Computers provide flexible learning in terms of location, time, and open-entry/open-exit formats.
- Computers are private, personal, and patient.
- Computers can offer immediate feedback and reinforcement.
- Computers can provide a large number of variations in speed, instructional method, remediation or enrichment, and diagnosis of errors.
- Computers permit individualized instruction where the adult learner is actively involved.
- Computers present a continuous report on accomplishments, thus allowing adults to see how well they are progressing toward their goals.
- Computers provide access to new information that was not previously available in a convenient mode.
- Computers promote active learning and, therefore, further the integration of theory and practice.

INSTRUCTIONAL APPLICATIONS OF COMPUTERS

COMPUTER-ASSISTED INSTRUCTION (CAI) IN FUNDED PROGRAMS

Microcomputers

According to a recent survey, many adult learning centers in New York State are now using some type of computer program in a CAI capacity. An example of this use is the Great Neck Study.

The Great Neck Adult Learning Center (Great Neck, New York) did an extensive study of CAI in the late 1970's and expanded the role of CAI during the years 1982-1984. CAI, an integral learning tool, was used by English as a Second Language (ESL), Adult Basic Education (ABE), General Educational Development (GED), and External Diploma Program (EDP) students in their basic skills programs. It was found that CAI had a significant effect on cognitive and affective growth. Cognitive aspects more than doubled. In the affective domain, students increased their contact with the centers, became more self-directed, improved their concentration, and liked the immediacy and feedback from the system. Noticeable changes were also observed in the staff; they became more diagnostic, prescriptive, and organized. CAI was also found to be useful in diagnosing skill areas, presenting individualized material to improve and reinforce skills, and in maintaining records of each student's progress.

This survey found that, in other adult education centers using computers:

- Most computers were housed in a learning laboratory setting, with a few centers also housing them in classrooms.
- Computers and software programs were used to extend classroom work as supplemental instructional tools.
- The length of time computers were used varied with each center and the number of computers available.
- CAI was part of most adult students' program prescriptions.
- Some adult learning centers had given student assessments using computer software programs or using commercial tests that were computer-scored.

Based on these students' assessments, CAI evaluations were made that enhanced their overall programs. For example, at one adult center, the students, after taking the Test of Adult Basic Education (TABE), were offered various software programs in the content areas of math, reading, science, social studies, and writing, as well as the areas of survival skills, health, and employment.

CAI programs that had discrete (separate) units, had a pre- and post-test, were high interest, and were "user-friendly" were preferred. In an attempt to improve the transfer of skills, traditional classroom instruction and microcomputer instruction were employed for each major concept. There, a pattern of dual instruction was established. The software programs at these centers were generally drill and practice, and tutorial types which correlated directly with the concepts taught in the classroom setting. Those centers now offer classes in writing skills and have future plans to use word processors in preparing students for the writing section of the Tests of General Educational Development.

Some adult centers have indicated the following limitations in the use of microcomputers:

- Software programs are more complex to run.
- Use of each disk must be taught.
- Too much attention to keyboard features is required.
- More steps are needed to load a program.
- A longer loading time is needed than for a mainframe computer.
- There are limited content areas in software.
- Software programs do not relate well to the instructional goals of adult education programs.

Mainframe Computers

Some centers choose to have a mainframe computer as the backbone of CAI because of its program capabilities and the ease in the use of the computer for adult students. At one adult center, a mainframe computer runs programs supplied by the Computer Curriculum Corporation (CCC), a supplier of adult software. These programs feature thousands of items, and are easy to call-up and run. In addition, they have an answer time that can be adjusted for students with handicapping conditions and allow for a complete developmental program. These CCC programs constitute the CAI component and are part of each student's prescription.

The major disadvantage of the mainframe computer is the initial cost of purchase and installation and/or the ongoing cost of leasing.

Positive Aspects of CAI

Several surveys conducted in the early 1980's questioned whether the best use of computers was as an instructional or management tool. The respondents agreed that computers would be best used in a multi-purpose fashion. Also, recent studies have shown that computers can be effectively incorporated into adult education programs with a minimum of effort, expense and teacher training.

Adult educators now feel that, overall, the record of CAI in Adult Basic Education (ABE) and General Educational Development (GED) programs is positive and that the most encouraging aspects are found in the areas of individualization, positive reinforcement, and instructional gains. Computers seem to be appropriate for adult learners in remediation with instructional procedures dealing with tutorial approaches, definitions, drill and practice, and enrichment. They also have an acknowledged usefulness in testing, testing with learning, performance recording, and timing, where skill development is the objective. The computer skill needed by most adults is that of being able to use a micro and/or mainframe computer with accompanying software as a device for learning as they ordinarily might use a book, audiotape, film or laboratory equipment and materials.

CAI in the Content Areas

Computer-assisted instruction continues to gain popularity with adult students and their teachers. Some computer programs may be used developmentally while others may be used for enrichment and review, depending on each adult student's diagnosed knowledge, skill needs and level (basic, pre-GED, GED, and English as a Second Language (ESL).

The content areas generally covered in most adult education CAI programs are math, reading, science, social studies, writing and related English skills, health, and survival and employment skills. The computer software programs provide assistance in the following:

- MATHEMATICS - basic skills, problem-solving, logic, enrichment.
- READING - basic skills, comprehension including vocabulary, finding the main idea, drawing conclusions, making inferences, finding facts and specific details, practical reading (classified ads, menus, signs, labels), general reading (newspapers, magazines, brochures), prose, poetry, and drama.

- SCIENCE - basic concepts, knowledge and application, plus biology, earth science, chemistry, and physics as tested on the GED.
- SOCIAL STUDIES - basic concepts plus knowledge and application in the areas of geography, economics, history, and political and behavioral sciences.
- WRITING - capitalization, punctuation, grammar, sentence correctness, logic and organization, and spelling.
- HEALTH - anatomy, care of body, diseases and their symptoms, nutrition, medical care, patients' rights.
- LIFE SKILLS - reading for survival (danger signs,warning labels), using public transportation, first aid, safety at home and work, pre-employment (developing resumes, preparing for interviews and getting along on the job).

Computers can be used to diagnose skill needs of adult students in the various content areas and then to prescribe materials and activities to meet these needs. Computers also have programs which can evaluate the readability levels of materials.

Quality word processing programs have great potential for developing and improving writing skills. Word processors facilitate easy editing and revising and may encourage learners to do these tasks more readily than before. Also, after practice with a word processor, many adult students can work more independently, which is an important goal in adult learning.

Several centers are beginning to use word processing in the composing process. Some centers are using prewriting software, such as those supplied by Milliken Publishing Company. Topics covered by these programs include writing a complete sentence, sentence combining, and generating ideas for a topic. Other centers are doing prewriting activities (such as brainstorming and outlining) in a classroom setting and then using a word processor for the rough and final drafts. Within this context, student-teacher conferences are conducted for both drafts while attention to spelling errors is handled by word processing software in the computer and/or learning laboratory. In addition to word processors, several good software programs that address the technique and mechanics of composing have been produced. One particularly popular software program that combines reading, writing, math, and a number of other content areas is the *GED 100* by Steck-Vaughn. This program is a "user-friendly," computerized management system that provides diagnosis, prescription, remediation, enrichment, reinforcement, and testing. The pre-GED and GED diskettes include skill preparation in reading, writing, math, science and social studies. Skills are cross-referenced to supplementary print materials. Adults can work independently and at their own pace, which results in high motivation with a feeling of accomplishment. There is also an administrative module available for the system. Other popular word processing systems for adult learners include *PFS: Write, Superscript*, and the *Bank Street Writer*.

- ENGLISH AS A SECOND LANGUAGE - One area of adult education that has not been significantly affected to date by either microcomputers or mainframes is English as a Second Language (ESL). However, the contributions computers can make to ESL are numerous. For example, the interactive capabilities of the microcomputer suggest that it may be considered a substitute for the audio laboratory in language instruction. The microcomputer can be programmed to respond to a student's answer, allow a student to compose at the keyboard while it generates additional responses, and encourage the student to be an active participant. Microcomputers can also offer interactive activities for small groups of students (two or three). Members of such groups quickly learn to take turns at putting in data and frequently discuss the appropriate responses to questions posed by the computer program. They learn with and from each other as well as the teachers whenever they join the group.

It is important that computers be used on a voluntary basis and that teachers and/or aides be thoroughly trained in the use of computers so that they may teach and assist students in their use of computers. Shy or seemingly withdrawn students should be given time to learn with computers at their own pace. Teachers should continuously monitor computer learning to make sure that all who want to participate have equal opportunity and time and that the computer programs meet the individual skill needs which have been identified previously. Microcomputers can also offer flexibility in the form of subprograms.

On a more concrete level, the potential for graphics and animation in ESL instruction in grammar is important. Some grammatical concepts are difficult for students to understand and are equally as troublesome for teachers to present. A computer could provide a visual image of the grammatical concept that would create a correct and lasting impression. This visual image might have a greater lasting effect than an isolated example in a textbook.

CAI in language teaching has been referred to as CALL (computer-assisted language learning), CALI (computer-assisted language instruction) or ESL CAI. Using computers for language instruction has not gained popularity,

principally because the software needs to be improved. However, for teachers willing to author their own programs, computers open the possibility of developing some very creative lessons.

Some of the strongest criticisms of commercially-produced software programs for ESL CAI follow:

—Their structure is mostly a drill and practice type with a "wrong; try again" approach limited to grammar and vocabulary, which dates back to the 1960's Skinnerian principle of stimulus-response, and more often than not results in negative reinforcement.

—The student does not have control over the content of the lesson, e.g., some programs add paragraphs and advance pages automatically without instructions from the student and/or exit a student from the computer after a certain amount of time.

—Instead of providing practice in using language in real life situations, programs encourage the student to manipulate the language, e.g., substitution drills: "He has a ball." "He has a dog." "He has a book."

—The lessons are lock-step in nature, e.g., the student is unable to move forward or backward within a lesson, or skip ahead to other lessons.

—ESL software demands too much or too little from students. Many programs are multiple-choice or true/false. On the other hand, some lessons expect too lengthy an answer that is subject to increased typographical errors.

—The programs include responses to students' incorrect answers that serve no educational purpose, such as "Try it again." It is useless to tell the student that an answer is incorrect without explaining the reason and redirecting the student to construct an appropriate response.

—Programs have a limited capability for hard-copy printouts of student input; the teacher is unable to determine students' mistakes, why they were made, if there is a bug in the program, or if the student knew the correct answer but simply entered it incorrectly.

—Documentation of ESL programs often is poorly sequenced and indexed, and lacks concise, straightforward explanations to operation problems.

It has been suggested that CALL programs should become more creative, innovative, interactive, and flexible through the use of simulations, communicative games, text manipulation, sound pictures, and artificial intelligence strategies. Branching, a type of programming that responds in different ways to student input, also may help to improve program quality. A student is able to take alternate paths through a lesson, eliminating lockstepping. "Branching" may also refer to the computer producing alternate responses based on the student's answers. In the end, a quality program will emphasize useful linguistic content.

Whether one refers to the use of microcomputers in language learning as CAI, CALI, CALL, or ESL CAI is immaterial. The real issues are its extent and effectiveness in ESL. Some ESL programs in New York State are using CAI to a limited extent. There is fairly widespread agreement that programs for ESL levels I and II are nonexistent. Low-level ESL students need computer programs with auditory responses simply because many of these students cannot read the print on a screen. The existing computer programs designed for ESL levels I and II have inappropriate reading levels and those that attempt to simulate the sounds of speech do so poorly. For upper level students there are some suitable programs which deal with the areas of beginning math and reading. Reading programs at these levels focus on vocabulary, idioms, grammar, speed reading, and simple comprehension, while math programs center around drill and practice computations.

Ideally, software for adult ESL instruction should

—Be:

- innovative.
- interactive.
- flexible (i.e., avoid lock-step format).
- at appropriate reading levels.
- capable of hard copy/printouts of student input.

—Integrate:

- simulations.
- communicative games.
- appropriate vocabulary.
- realistic speech synthesis for lower levels.
- pictures with sound.
- instructional units that are self-contained, independent.
- artificial intelligence strategies that simulate human thinking through programming, which involves inter action between the computer and the user.

—Provide:

- useful linguistic content.
- student control (e.g., pages advance only by student command).

* practice in using English in realistic situations.
* explanations of incorrect student answers.
* discrete units of skill development.
* the ability to enter and exit at any given level.

Using computers in ESL need not always employ a traditional approach of grammar skill practice, idiom familiarization, etc. One adult literacy program uses software programs as a stimulant for conversation. Involvement in game-formatted programs encourages discussion among the participants. This approach suggests preliminary steps, such as talking about the game beforehand, reviewing program vocabulary, choosing three-member teams, and exploring what part the computer plays in the activity.

- GUIDANCE APPLICATIONS

Although computers have not yet made much of an impact in the field of ESL, they have been proven to have an application for guidance and counseling. In these areas, the computer can promote personal awareness, as evidenced in career-counseling software such as *DISCOVER*. This program helps adult students clarify values, skills and personal attributes which affect career intentions (Heerman, in Heerman, 1986, p. 12). *DISCOVER* (ACE), a computerized occupational assessment system, consists of four parts. The first part includes an interest inventory and values clarification; the second contains files and descriptions of about 400 occupations; the third offers different means of gathering information about occupations; and the final part is concerned with searching for educational institutions. Immediate printouts are available to aid in career planning.

The Harrington O'Shea Career Making Decision Program is another guidance tool. This program produces a 12-page printout reflecting abilities and interests. It indicates needed skills for a particular career, projects job outlooks, and generates a list of suggested career fields. Some adult educators feel that this program is helpful to those finishing a General Educational Development program and those who need job retraining.

Other counseling and/or diagnostic software programs are produced by Leading Edge. These programs are designed to lead adults to reflect on their skills and abilities within various managerial and communication contexts.

Creating Training Programs for CAI

CAI constitutes learning "with" computers, i.e., using computers as a vehicle for learning. Many adult educators think that computers may heighten learning outcomes, but only if they are considered within the context of the intended interpersonal nature of the classroom process and the desired computer background. Regardless of the amount of time computers are used in adult education, adult learners must acquire minimal knowledge about the hardware and software.

In creating training programs to teach adults to use computers for instruction the following assumptions are inherent:

- The students are motivated to use computers as a learning tool.
- There is a need to teach adults about computers.
- The needs are not the same for everyone.
- A training program should be flexible, pertinent, and current.
- Hands-on experiences are essential.

Generally speaking, adult educators give their students only a minimum amount of training - just the essentials needed to use a software program. However, in some instances, as adults gain confidence and experience, more sophisticated training is offered. For example, experienced adult learners who are interested in more than just the basic operation of a computer may use a software program such as *Getting to Know Your IBM*. Most major hardware companies feature a program such as this. Acclimating adult students to CAI necessitates that the following generalizations be taken into consideration:

- Little or no information is needed concerning the history of computers, how a computer works, or the capabilities of computers.
- Some basic terminology is required - words that adults will meet on software and terms involved in loading and running a program, e.g., boot up, disk drive, prompt, etc.
- Most adult students learn from their mistakes. Solutions can be obtained from a computer teacher, aide or manual. In some cases, sections of the computer manual are given to more experienced adult users so that they can solve their own operational problems.
- All computer laboratories need to have a computer teacher, an aide or both on hand to help with individual problems. In one center, adult students are aided by clear, concise posters stating the steps involved in using a program, choosing the right program, and CAI lessons that are available.

Specifically:

- In the introductory stages, a computer teacher or computer aide must load programs for adult students.
- Next, students need to be taught how to turn the computer on and off.
- Adult students then need to be taught how to properly handle a disk or cassette, and how to load a program - a skill essential to achieving independence. For instance, in loading a microcomputer the student may need to insert a disk in the disk drive, place a cassette in the tape player, or insert a cartridge. In using a mainframe, the student needs to sign on and call up a program.
- Students need to be shown the special keys on the keyboard that are needed to load or run a program. Students also need to become familiar with keys that have extra functions, such as restarting or exiting the program, changing colors, printing, and saving text on disks or cassettes.

CAI IN FEE-SUPPORTED PROGRAMS

According to results of a 1982 survey compiled by the Bureau of Labor Statistics, workers now use computers in 140 of 673 occupations (National Commission for Employment Policy, 1986). The impact of this statement is echoed by several adult education writers. One writer projects that in the near future there will be an electronic keyboard for every white-collar worker (including keyboards that operate personal computers, terminals, electronic typewriters, word processors, and so on) (Heerman, 1986, p. 1). Another writer feels that the microcomputer revolution has created a need for adult computer literacy and this need has established a new continuing education market. In fact, each day, "continuing education's options for imaginatively serving adults with alternative learning strategies that employ the computer are becoming more varied and more compelling" (ibid., p. 14). The following is a compilation of factors that have kindled an interest in learning about computers:

- Formal computer education in elementary and secondary schools.
- Development of the personal computer as a status symbol.
- Job loss and worker displacement.
- Job retraining or employment requirements.
- Marketing blitz by computer companies.
- Natural curiosity of adults to learn about something that impacts on their lives.
- Belief that computers, as a learning tool and resource, can increase continuing education possibilities in an age of technology.
- Belief of adult educators, in particular, that computers are well-suited to learning styles that are characteristic of adult learners.

The Target Population

The people who have helped establish a new continuing education market for adult computer literacy are generally adult learners who are attracted to computer courses because they have been introduced to them at the workplace or have anticipated their importance in future career plans. According to Sherrill Amador (Heerman, pp. 79-84), these adult learners tend to be women, 32 years of age, employed, have a higher than average income, and were previously enrolled in continuing education courses.

Amount of Training

Based on the 1986 National Commission for Employment Policy Report, number 19, workers can be divided into three groups, according to the amount of training they need.

The first group requires several years of formal schooling and on-the-job-training in computers. Examples of these workers are systems analysts, programmers, and system designers. Relatively few workers will be in this category - about 1% of the total U.S. workforce in 1995.

The second group is comprised of people such as scientists, accountants, and architects, who use computers in a given field. This group may require only a single computer course or other brief training and will comprise about 7% of all workers in 1995.

The third group operates computers using standardized software packages, such those addressing word processing, storage and retrieval, and industrial process control. This group requires a few hours to a few weeks of formal training activities. Examples of workers in this group are tellers, real estate agents, airline clerks, department store clerks, etc. This group will comprise about 23% of the workforce in 1995 and will continue to increase at a steady rate. It is this group of adult learners that learning centers and continuing education programs need to be targeting for their computer courses.

In addition to the requisites of basic literacy and composition, trainees in all three groups need to be adept at solving problems, recognizing computer responses, understanding error messages, and taking appropriate action; and adapting to new situations that involve new skills.

Creating Training Programs

Computer training programs are essentially of two types; those that teach adults how to use computers as a learning tool and those that teach adults how to use computers to perform some task or analytical work such as word processing, programming,using spread sheets or data bases. In the former, (CAI), only a minimum amount of instruction is needed. In the latter, for those learning about computers, more sophisticated instruction is needed.

For those adults who need to know about computers to prepare for a career in that field or to enhance or update skills in their career, adult education centers offer a multitude of continuing education courses relating to computers that are based on a needs assessment in that particular locality. However, there are two general areas or broad competency levels that should be included in any continuing education course "about" computers, i.e., that which requires more sophisticated instruction than CAI: knowledge and competency. This type of computer training program should provide students with:

Knowledge of:

- The history of computers.
- Types of computers and their uses.
- Terms and concepts.
- The basics of how a computer operates.
- Principles of operating a computer, including functions, system components, use of keyboard and peripherals, entering programs, responding to menus and other program prompts.

Competencies in:

- Disk and file-management tasks.
- Problem-solving.
- Professional applications: proficiency at any high level skill associated with word processing, spreadsheets, accounting applications, database management, report generation, or specific programming languages.

Hands-on experiences are extremely important. Ideally, in these classes there should be one computer per adult learner. A computer course should consist of both lecture and lab activities. Class assignments or problems which require application of the skills learned should include content and evaluation.

Word processing courses are very popular in New York State continuing education programs, as are courses dealing with spreadsheets, data base applications, and programming languages such as BASIC and LOGO. Some continuing education programs offer specialized courses in software evaluation, instructional methodologies for elementary and secondary students, or small-business applications such as accounting and bookkeeping, inventory control, personnel record keeping, data entry, and budgeting.

In several instances, adult centers have provided specialized computer training by contracting with private companies. For example, one New York State adult center trains about 120 adults per year in data processing for a private corporation. Another center contracted with a large supermarket chain to train cashiers and front-end managers. Although instructional hours vary for all of these different computer courses, time spent using the computer exceeds classroom instruction time. Evenings and weekends are popular times for these courses to be offered.

Currently, computers in CAI are receiving a great deal of attention. However, it is increasingly evident that microcomputers as learning tools (as in word processing) or learning resources (as in data banks) have great potential for enhancing continuing education programs as well.

Advertising

Creating an up-to-date continuing education program that includes computer instruction demands an aggressive, effective advertising campaign. The following are suggestions of successful methods for advertising adult computer courses:

- Direct mailings of flyers and catalogs to previous continuing education adults, community centers, local companies, industries, government agencies, computer retailers, and school systems.
- Presentations by adult educators at various group meetings.
- Advertisements in local newspapers, professional newsletters, and local magazines.
- Personal contacts by adult educators and continuing education representatives with companies and government agencies (e.g., contract between adult learning center and private company for particular training services.)
- Promotion through local business bureaus.
- Public service announcements on radio and television.

Advertisements need to be attractive to adult learners with the focus directed toward adult needs and instructional methods; scheduling should also be appropriate for this type of learner.

Software Evaluation and Programs

There is a general consensus among prospective computer buyers that program needs must be assessed BEFORE monies are invested in hardware and software. Otherwise, according to Argento, Cooper and Schwartz, (1982), the computer "may end up as an expensive novelty which attracts attention but makes little or no major contribution to the education or training of the clients," (p. 67). Other factors which may negatively affect the computer's ability to contribute to adult continuing education programs are the poor quality and the scarcity of software that is appropriate for adult learners. On these points there is no consensus. Vacc (1984) states that there is a "...limited amount of software developed for use in adult education..." (p. 6). Other educators feel that software is improving, but there is a need to evaluate software programs carefully; they add that evaluation guides and criteria are helpful. Independent agencies, individual educators, and education centers have published their own directories of quality software for adult education. A list of such groups may be found in the Appendix.

Software Program Qualities

Generally speaking, software programs can be evaluated in three areas: content, instructional design, and technical design. The following list is a compilation of suitable software characteristics suggested by adult educators who have written articles about software. Software programs for adults should have these features:

- The content should:
  - —be error-free.
  - —be logical.
  - —be compatible with other instructional materials being used.
  - —have a vocabulary relevant to adults.
  - —reflect a continuum of skill development that allows students to begin instruction at a level appropriate for their needs.
  - —avoid all types of discrimination and stereotypes.

- The instructional design should:
  - —have clear learning objectives.
  - —be useful and provide immediate feedback.
  - —be challenging but not frustrating in format.
  - —have sufficient runtime to accomplish objective.

- The technical design should:
  - —be user-friendly.
  - —be easy to enter and exit.
  - —have concise and adequate directions.
  - —provide a readable screen.
  - —provide sound and graphics that augment the program.

A partial listing of software programs for adult education suggested by adult education centers in New York and other states is provided in the Appendix.

AUTHORING LANGUAGES

Authoring languages are programming languages that have been designed to help nontechnical people write programs in their subject area. An authoring program is the software that provides the structure of the lesson and allows the author to insert his/her own material. In this way, an author can concentrate on the content, questions to ask, and possible student responses without worrying about complicated programming formats. Two popular authoring languages are *Pilot* and *Author* (Tandy Corporation). Another authoring system that is still in an experimental stage is *HANDY* by Don Nix (IBM). It is being used to generate reading, math, language arts, and study skills programs, in addition to being an important part of an interactive videodisc system currently being tested for adults. There is also a technique known as "mini-authoring." This implies a very restricted format, one which is capable of producing worksheets for reinforcement; this kind of authoring is dominated by multiple-choice and true/false exercises.

Regardless of the type of system used, it is important to have a working knowledge of the technical documentation of the program; that is, an understanding of the nature of the program as developed by the software company and how the user can adapt it to his or her specific instructional objectives, e.g., entering into the program a specific vocabulary, or spelling list, or series of questions.

This technical documentation consists of codes, commands, and step-by-step directions which can usually be obtained from the program manual and differs from user documentation which is the series of commands that must be followed by the client in accessing the program. If, in authoring a program, these user commands are altered from those found in the manual, they, too, should be documented or logged for future reference.

There are many reasons for authoring one's own program. It is a frequent criticism of commercial CAI programs that the programmers do not develop them to accom-

modate the characteristics of adult learners. The current poor quality of many commercial programs suggests that adult educators may wish to develop new programs. This has the potential for generating programs better suited to individual adult needs. In addition, gaps in content areas could be "filled in" and tests could be designed with greater attention to the learner. Another positive aspect of authoring one's own program is that adult educators would have the opportunity to introduce their expertise into the courseware.

SOFTWARE PUBLISHERS

Developing Software Programs

At a recent conference concerning adult literacy and computers, representatives from software companies explained how they develop their products. Only one company stated that many of its software programs are written by teachers, then developed in-house for quality control. In this case, a teacher-authored program is recoded by the company's own programmers. This particular company also works with outside consultants who are specialists in specific content areas. Other companies indicated that their software programs are primarily developed in-house, although ideas from outside sources are welcome. In order to see improvement in the quality of adult education software, adult educators may need to become more vocal in expressing their needs and instructional viewpoints to software companies.

Field Testing

The amount and degree of field testing of a software program varies among companies. Some companies spend little or no time on field testing; other companies use a limited number of field test sites at local school districts; still others depend solely on in-house quality control. However, Instructional/ Communications Technology, Inc. employs a review board of 30-40 evaluators from all administrative and instructional levels who review a prototype before it is actually marketed. This method eliminates most problems before the program is distributed.

Future of Adult Education Software

According to some company representatives, the quantity and quality of adult education software should improve. As far as quantity is concerned, an increasing adult education population should increase software production. Also, it is felt that some small independent companies may choose to focus on this burgeoning population and may actually specialize in this area. Quality could improve as technology improves and as program writers become more creative and proficient in addressing the needs of adult learners and at using the full potential of the computer as a tool. Select software companies have expressed an active interest and commitment to develop and produce quality software for adult learners. At the same time, some software companies would like to have ideas forwarded to them from practitioners in the field.

MANAGEMENT APPLICATIONS OF COMPUTERS

FUNDED PROGRAMS

Computer-based education (CBE) consists of: Computer-Assisted Instruction (CAI), Computer-Managed Instruction (CMI), and a Management Information System (MIS). The three functions complement each other and together present a unified, efficient system. A CAI/CMI/MIS system can produce periodic reports, budgets, and information regarding students' eligibility, assessments, Individual Educational Programs (IEP's), progress, test scores, and other student data.

CAI/CMI/MIS systems are presently being used by the Gary Job Corps Center (San Marcos, Texas), Clearfield Job Corps (Clearfield, Utah), and the Penobscot Consortium (Bangor, Maine). These programs are recognized for their impressive training and placement records. As with other complex computerized systems, these are tailored to the needs of the users and are evaluated regularly. New York State has made a commitment to the value of CAI/CMI/MIS as a management tool.

New York's Role

In 1983 and 1984, the New York State Education Department, Bureau of Adult and Continuing Education Programs funded a large project to improve the use of microcomputers in managing Adult Basic Education programs. Training, software, and hardware were provided to 46 sites. The target sites indicated that they wanted a management system that would handle student record-keeping, registration, grades, attendance, scheduling, report preparation, staff records, and student counseling. Word processing capabilities were satisfied by a different program. Because of this project, a standardized core of

computerized administrative systems was established, training in the use of the system was developed, and an approach to servicing administrative needs on microcomputers was devised. This system, *Computerized Student Record Data Base*, is described more fully in the following section.

Advantages of a Computerized System

A computerized management system makes possible:

- Progressive improvement in instruction as student performance data is periodically analyzed for curriculum revisions.
- Individualized diagnosis and instruction at a much lower cost than individual tutors.
- Increased total enrollment of youth being served by the existing staff.
- Increased financial support from public and private groups for microcomputer program development.

A number of adult education programs in New York State are currently using computers to manage courses; process registrations; manage faculty mailing lists and logistical and calendar requirements; and generate reports, correspondence and other communications. One software program that shows promise as a prototype is *Computerized Student Records Data Base*, produced by D-VISE, Inc. This program handles demographics, contact hours, and course information for ABE, GED, and ESL. Although it is not yet used for budgeting, it is a valuable management and planning tool. A new module also produced by D-VISE is *Occupational Education Reporting System*, a management system that calculates and compiles statistical data for BOCES State funds.

One software program being used on a limited basis is *ENABLE*, which handles all student information and billing for Equivalent Attendance Program (EAP) and Employment Preparation Education (EPE). It can also maintain all student and testing records and compile data for State reports. *PFS: Write and File* maintains a mailing list of GED graduates; and a word processing and graphics component prints a GED graduation program plus various flyers.

Other commercial programs can be used to simplify the bookkeeping of payroll, retirement benefits, health and unemployment insurance, workmen's compensation, and other expenses incurred by a center. They can also be used to manage work schedules including vacations and holiday time. Correspondence, lists, and advertising banners and flyers are possible on an in-house word processor and can be enhanced by a graphics component such as *Print Shop*. *CHART-PAC*, a table and graph software program, can be used effectively by adult education administrators in making presentations to school boards and community organizations.

FEE-SUPPORTED PROGRAMS

Fee-supported programs can use computers in a variety of ways as a management tool. Computers can be used for:

- managing courses.
- processing registrations.
- keeping staff and student records.
- maintaining accounting information.
- generating mailing lists, schedules, and calendar and logistical needs.
- letters, brochures, and other communications.

Uses of the computer as a management tool in fee-supported programs are unlimited.

Many New York State adult education centers are already using computers for:

- generating flyers, brochures, and catalogs advertising courses.
- compiling statistical data to determine costs of specific course offerings.
- providing billing records.
- maintaining course rosters.

By linking word processing capabilities and graphic enhancers, some adult learning centers are generating attractive brochures to advertise their programs. At this time, however, computers have greater management uses in funded programs than in fee-supported programs.

THE FUTURE

Based on the numbers of adult educators who are using or are interested in using computers in their programs, the impact that computers have already had on adult and continuing education, and favorable statements about CAI by experts in the field, it is reasonable to assume that the future of computer-based education in adult programs is promising. Specifically, some adult educators who are experienced in the use of computers predict the following will happen:

- The curriculum will correlate and streamline the use of computers with students' needs.
- Adult learning centers will use computers to become brokers of education.
- Homebasing will become increasingly common (tying a home terminal to a mainframe, thus promoting independent learning and responsibility for one's own education).
- The Test of Adult Basic Education (TABE) will be placed on-line.
- Computers at adult centers will be available for a greater number of hours.
- Adult education centers will develop their own software using an authoring language.
- More union business and industry contracts will be acquired for training programs.
- The New York State Education Department will expand services to establish a direct link-up to regional information centers (re: Technology Network Ties program). Presently, services are limited to transmission of original documents and correspondence, conferencing, and sharing of some software at key sites.
- Software programs will be available through a Statewide lending library.

It is important to note that in discussions with adult educators and writings of authorities in this field, a recurrent point is that the computer is a teaching tool, or a learning resource, not a substitute for a teacher; computers and teachers should complement each other. Since adults learn differently and there is no patent method of instruction, a variety of resources should be offered to adult learners. The computer is one of many tools with which adults can extend their life experiences. It has the potential for enriching education and empowering learners to independently pursue lifelong learning.

Interactive videodisc systems are perhaps the most futuristic way of enabling adult learners to become independent learners. Currently being developed and tested, this system combines computer and laser scan videodisc technology. One such program, is the *Principle of the Alphabet Literacy System, (PALS)* a self-paced reading and writing instructional program developed by IBM and the John Henry Martin Corporation. It is intended for high school and adult illiterates and requires students to interact through an InfoWindow and a touch sensitive screen.

Another innovative adult literacy program using this same type of technology is being formulated by Don Nix (IBM, Exploratory Education Systems). This program, *LINKS*, utilizes a technique that teaches reading comprehension by "linking" action and feeling. The text of the instructional program is superimposed on the videotape and students interact with it using the computer keyboard or a touch panel. This experimental system provides various feedback for answers, centers the locus of control with the student, has excellent voice simulation with which the computer can read text to user, and does not insult or constrain the user.

APPENDIX

RESOURCES OF ADULT EDUCATION SOFTWARE PROGRAMS

Gilliland, L. (1985). *Microcomputers Bibliography for ABE/GED Basic Skills Instruction.* Wausau, Wisconsin: North Central Technical Institute.

Evaluation of software programs for adequacy of directions, sequencing, degree of ease of use, dependability, graphics quality, documentation, appropriateness, and client reactions.

Holter, M. & Johnson, C. (1985). *Handbook and Annotated Bibliography, Microcomputers in ABE.* Cincinnati, Ohio: Cincinnati Public Schools.

Handbook contents: a section on microcomputer resources for ABE, textbooks, A-V materials, and curriculum aids. Bibliography contents: over 200 annotated entries for microcomputer software programs that have been used successfully with adult learners. Each entry includes program name, publisher, date, subject, instructional type, level of use, and a description. Vendor addresses and phone numbers are also provided.

International Center for Integrative Studies. (1986). *EdTech Resource Guide.* New York: ICIS.

A three-part guide containing program descriptions, features, and comments; suggestions for program usage, integrated software packages, add-on features of commercial programs; trends in microcomputer technology; and a bibliography of journal articles.

Merrimack Education Center. (1986). *Software Reviews for Adult Education.* West Springfield: Massachusetts Department of Education.

Profiles software programs including titles, producer, cost, hardware requirement, runtime, use (ABE, GED, Pre-GED, ESL or Pre-Vocational), subject/skill area, instructional mode (drill and practice, tutorial, simulation, etc.), and description of the program.

Rich, L. (compiler). (1986). *Computer Assisted Instruction Review: Vol. 1. An Annotated List of Software for Basic Reading and Conversational English.* Syracuse, NY: Literacy Volunteers of America.

Evaluations of software programs including title, publisher, cost, hardware requirements, subject area(s), instructional mode, and reviewer comments.

Robinson, J., Brown, A., and Pomeroy, J. (1985). *Software Applications for Adult Learning Programs.* Manhattan: LERN Publication.

Descriptions of specific, common-sense applications that run on common software packages such as Lotus, Supercalc, Visicalc, and Symphony. Actual printouts of format for cost/benefit analysis, budget worksheet, typesetting, contract cost forms, student data management, etc. are given.

Williams, M. (compiler). (n.d.). *Evaluation of Microcomputer Software for ABE/GED Basic Skills Instruction.* Kingston, NY: Luzerne Intermediate Unit 18.

A comprehensive list of microcomputer software with evaluations that may be helpful in initiating a resource center for CAI.

TITLES OF USEFUL ADULT EDUCATIONAL MICROCOMPUTER SOFTWARE PROGRAMS AS IDENTIFIED BY ADULT EDUCATORS AND LISTED BY INSTRUCTIONAL AREAS

Titles	*Vendors*
• ABE/GED	
—Counseling and Guidance	
Discover	ACE (American Council on Education)
Harrington O'Shea Career Making Decision	American Guidance Service
Learning Styles Software	D-VISE, Inc. & Pinnacle Research, Inc.
Test of Adult Basic Education (TABE)	McGraw-Hill (CTB)
—Language Arts	
Capitalization Plus	Microcomputer Workshops
Capitalization	Hartley Courseware,Inc.
Cloze Plus	Milliken Publishing Company
Comprehension Power Program, Levels D-L	Milliken Publishing Company
Context Clues	Educational Activities, Inc.
Critical Reading Lessons, Series A-H	Borg Warner Educational Sytems
Crossword Magic	Mindscape
Master Spell	MECC
Missing Links	Sunburst Communications
Punctuation Skills	Milton Bradley
Secondary/Adult Beginning Reading Microsystem	Instructional/Communication Technology, Inc.
Sentence Combining	Milliken Publishing Company
Story Tree	Scholastic, Inc.
Word Attack	Davidson & Assoc., Inc.
Word Scramble & Spelling Tutor	Avant-Garde Publishing Corporation
—Life Skills	
Cambridge GED System	Cambridge, The Adult Education Company
Create a Better Resume	McGraw-Hill Book Company
Daily Living Skills	Encyclopedia Britannica Educational Corporation
Essential Study Skills	Media Materials, Inc.
GED 100	Steck-Vaughn
Learning to Cope with Stress	Sunburst Communications
Motivate Yourself to Success	Education Associates, Inc.
Plato Life Coping Skills	Control Data Corporation
Practical Composition	Intellectual Software
Put It In Writing	Education Associates, Inc.
Spell Graph	DesignWare, Inc.
Successful Interviewing: Selling Yourself	Cambridge Career Products

Titles	Vendors

—Math

Algebra Drill & Practice II	Conduit
Basic Math Competence	Educational Activities, Inc.
Fractions	Q.E.D.
Fractions, Decimals & Percents	Society for Visual Education, Inc.
High School Math Competence	Microcomputer Workshops
Lemonade	MECC
Math Blaster	Davidson & Associates, Inc.
Mathematics Volume 3	MECC
Money! Money!	Hartley Courseware, Inc.
Multiplying Fractions	Microcomputer Workshops
Read & Solve Math Problems #2	Educational Activities, Inc.
Survival Math	Sunburst Communications
The Factory	Sunburst Communications
The Pond	Sunburst Communications

- **ESL**

Essential Idioms	Regents ALA Company
Grammar Mastery	Regents ALA Company
Spelling Demons, Computer Spell Down	Random House, Inc.
Spell It!	Davidson & Associates, Inc.

- **Word Processing and Data Management**

Bank Street Writer	Scholastic, Inc.
Chart-Pac	IBM
Computerized Student Records Data Base	D-VISE, Inc. & Pinnacle Research, Inc.
dBASE III Plus	Ashton-Tate
DEC WPS Wordprocessing System	Digital Equipment Corporation
ENABLE	The Software Group
PFS: Write	Software Publishing Corporation
Print Shop	Broderbund
Scholastic pfs: File & Report	Scholastic
Superscript	Tandy Corporation
Symphony	Lotus Development Corporation
WANG WP	WANG

SOFTWARE COMPANY/VENDOR ADDRESSES

ACE (American Council on Education)
One Dupont Circle
Washington, DC 20036

American Guidance Service
Publisher's Building
Circle Pines, MN 53014-1796

Ashton-Tate
20101 Hamilton Avenue
Torrance, CA 90502-1319

Avant-Garde Publishing Corporation
37B Commercial Boulevard
Novato, CA 94947

Borg Warner Educational Systems
600 W. University Drive
Arlington Heights, IL 60004

Broderbund
17 Paul Drive
San Rafael, CA 94903-2101

Cambridge Career Products
#2 Players Club Drive
Charleston, WV 25311

Cambridge, The Adult Education Company
888-7th Avenue
New York, NY 10116

Computer Curriculum Corporation
1070 Arastradero Road
Palo Alto, CA 94304

Conduit
P.O. Box 388
Iowa City, IA 52244

Control Data Corporation
8100 34th Avenue South
Bloomington, MN 55440

CTB McGraw-Hill
2500 Garden Road
Monterey, CA 93940

D-VISE & Pinnacle Research, Inc.
159 Fairfield Court
Voorheesville, NY 12186

Davidson & Associates, Inc.
6069 Groveoak Place #12
Ranchos Palos Verdes, CA 90247

Design Ware, Inc.
Dept. E-1, 185 Berry Street
San Francisco, CA 94107

Digital Equipment Corporation
296 Fayette Freeway Frontage Road
St. Paul, MN 55107

Education Associates, Inc.
45 Fountain Place, P.O. Box Y
Frankfort, KY 40602

Educational Activities, Inc.
1937 Grand Avenue
Baldwin, NY 11510

Encyclopedia Britannica Corporation
425 N. Michigan Avenue
Chicago, IL 60611

Hartley Courseware, Inc.
2023 Aspen Glade
Kingswood, TX 77339

IBM Corporation
Education Systems Business Unit
3715 Northside Parkway
Atlanta, GA 30327

Instructional/Communication Technology, Inc.
10 Stepar Place
Huntington Station, NY 11746

Instructional Systems, Inc.
560 Sylvan Avenue
Englewood Cliffs, NJ 07632

Intellectual Software
798 North Avenue
Bridgeport, CT 06606

Leading Edge
P.O. Box 42247
Los Angeles, CA 90042

Lotus Development Corporation
161 First Street
Cambridge, MA 02142

McGraw-Hill Book Company
1221 Avenue of the Americas
New York, NY 10020

MECC
3490 Lexington Avenue North
St. Paul, MN 55112

Media Materials, Inc.
2936 Remington Avenue
Baltimore, MD 21211

Microcomputer Workshops
103 Puritan Drive
Port Chester, NY 10573

Milliken Publishing Corporation
1100 Research Boulevard
St. Louis, MO 63132

Milton Bradley
P.O. Box 386
East Longmeadow, MA 01028

Mindscape School Group
3444 Dundee Road
Northbrook, IL 60062

Q.E.D.
P.O. Box 12486
Portland, OR 97212

Random House, Inc.
201 E. 50th Street
New York, NY 10022

Regents ALA Company
Two Park Avenue
New York, NY 10016

Scholastic, Inc.
730 Broadway
New York, NY 10003

Society for Visual Education, Inc.
1345 Diversey Parkway
Chicago, IL 60614

Software Publishing Corporation
P.O. Box 50575
Palo Alto, CA 94303

Steck-Vaughn
P.O. Box 2028
Austin, TX 78768

Sunburst Communications
39 Washington Avenue
Room VF 414
Pleasantvile, NY 10570

Tandy Corporation
Radioshack Educational Division
Dept. 82A 356
1300 One Tandy Center
Fort Worth, TX 76102

REFERENCES

Argento, B.,Cooper, J. and Schwartz,R. (1982). *Using the Computer in Youth Training Programs, A Handbook for Practitioners*. Salt Lake City: Olympus.

Buckley, E. and Johnston, P. (1983). *Pilot Project in Computer Assisted Instruction for Adult Basic Education Students*. Great Neck, NY: Great Neck Public Schools.

Daglish, G. (1984). *Microcomputers and Teaching English as a Second Language, Issues and Some CUNY Applications*. (Research Monograph Series Report no. 7). New York: Instructional Resource Center.

Evans, R. and Evans, M. (1984). *Improving the Use of Microcomputers in the Administration of Adult Basic Education*. (Final Report). Canadaigua, NY: Community College of the Finger Lakes.

Gueulette, D. (Ed.). (1982). *Microcomputers for Adult Learning: Potentials and Perils*. Chicago: Follett.

Heerman, B. (Ed.). (1986). *Personal Computers and the Adult Learner*. In B. Heerman (Ed.), *New Directions for Continuing Education no. 29*. San Francisco: Jossey-Bass.

Holter, M. and Johnson, C. (1985). *Handbook and Annotated Software Bibliography, Microcomputers in ABE*. Cincinnati: Cincinnati Public Schools.

Joseph, J. (1983). *A Modular Approach to Building Adult Computing Competencies: The Desktop Computer Series*. Fox Valley Technical Institute. Appleton, WI.

Kenning, M. and Kenning, M. (1983). *An Introduction to Computer Assisted Language Teaching*. Oxford: Oxford University Press.

Meierhenry, W.C. (1982, December). "Microcomputers and Adult Learning." *Training and Development Journal*, 36(12),58-62, 64-66.

Merrimack Education Center. (1984). *Computers in Adult Education: A Planning Guidebook*. West Springfield: Massachusetts Department of Education.

Moore, R. (1982). *Computers and Continuing Education*. Manhattan: LERN Publication.

National Commission for Employment Policy. (1986). *Computers in the Workplace*. (Report no. 19). Washington, DC.

Rachal, J. (1984, Winter). The Computer in the ABE and GED Classroom: A Review of the Literature. *Adult Education Quarterly*, 35(2), 86-95.

Rio Salado Community College. (1985). *Computer-Assisted Instruction: An ABE-GED Curriculum Project*. Phoenix: Arizona State Department of Education.

Underwood, J. (1984). *Linguistics, Computers and the Language Teacher*. Rowley: Newbury House.

Vacc, N. (1984, April). Computers in Adult Education: Reading and Writing. *Lifelong Learning*. 7(6), 26-28, 31.

NEW YORK STATE EDUCATION DEPARTMENT
ALBANY, NEW YORK 12234

NON PROFIT ORG
U S POSTAGE
PAID
Albany, N Y
Permit No 293

88-6782
CAD 88-663